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Figure 1. Amino acid sequence of the B4ECv3 protein

MELRVLLCWASLAAALEETLLNTKLETADLKWVTFPQVDGQWEELSG  
LDEEQHSVRTYEVCEVQRAPGQAHWLRTGWVPRRGAVHVYATLRFTM  
LECLSLPRAGRSCKETFTVFYYESDADTATALTPAWMENPYIKVDTV  
AAEHLTRKRPGAEATGKVVNKTLLRLGPLSKAGFYLAFAQDQGACMALL  
SLHLFYKKCAQLTVNLTRFPETVPRELVPVAGSCVVDVAVPAPGPSP  
SLYCREDGQWAEQPVGTGCSAPGFEEAEGNTKCRACAQGTFKPLSGE  
GSCQPCPANSHSNTIGSAVCQCRVGYFRARTDPRGAPCTTPPSAPRS  
VVSRLNGSSLHLEWSAPLES GGREDLTYALRCRECRPGGSCAPCGGD  
LTFDPGPRDLVEPWVVVRGLRPDFTYTFEVTALNGVSSLATGPVPFE  
PVNVTTDREVPPAVSDIRVTRSSPSSLSLAWAVPRAPSGAWLDYEVK  
YHEKGAEGPSSVRFLKTSENRAELRGLKRGASYLVQVRARSEAGYGP  
FGQEHHSQTQLDESEGWREQGSKRAILQIEGKPIPNPLLGLDSTRTG  
HHHHHH

Figure 2. Amino acid sequence of the B4ECv3NT protein

MELRVLLCWASLAAALEETLLNTKLETADLKWVTFPQVDGQWEELSG  
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SLYCREDGQWAEQPVGTGSCAPGFEEAEGNTKCRACAQGTFFKPLSGE  
GSCQPCPANSHTIGSAVCQCRVGYFRARTDPRGAPCTTPPSAPRS  
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LTFDPGPRDLVEPWVVVRGLRPDFTYTFEVTALNGVSSLATGPVPFE  
PVNVTTDREVPPAVSDIRVTRSSPSSLSLAWAVPRAPSGAWLDYEVK  
YHEKGAEGPSSVRFLKTSENRAELRGLKRGASYLVQVRARSEAGYGP  
FGQEHHSQTQLDESEGWREQGSKRAILQISSTVAAARV

Figure 3. Amino acid sequence of the B2EC protein

MAVRRDSVWKYCWGVLMVLCRTAISKSIIVLEPIYWNSSNSKFLP  
GQGLVLYPQIGDKLDIICPKVDSKTVGQYEYKQVYMVDKDQADR  
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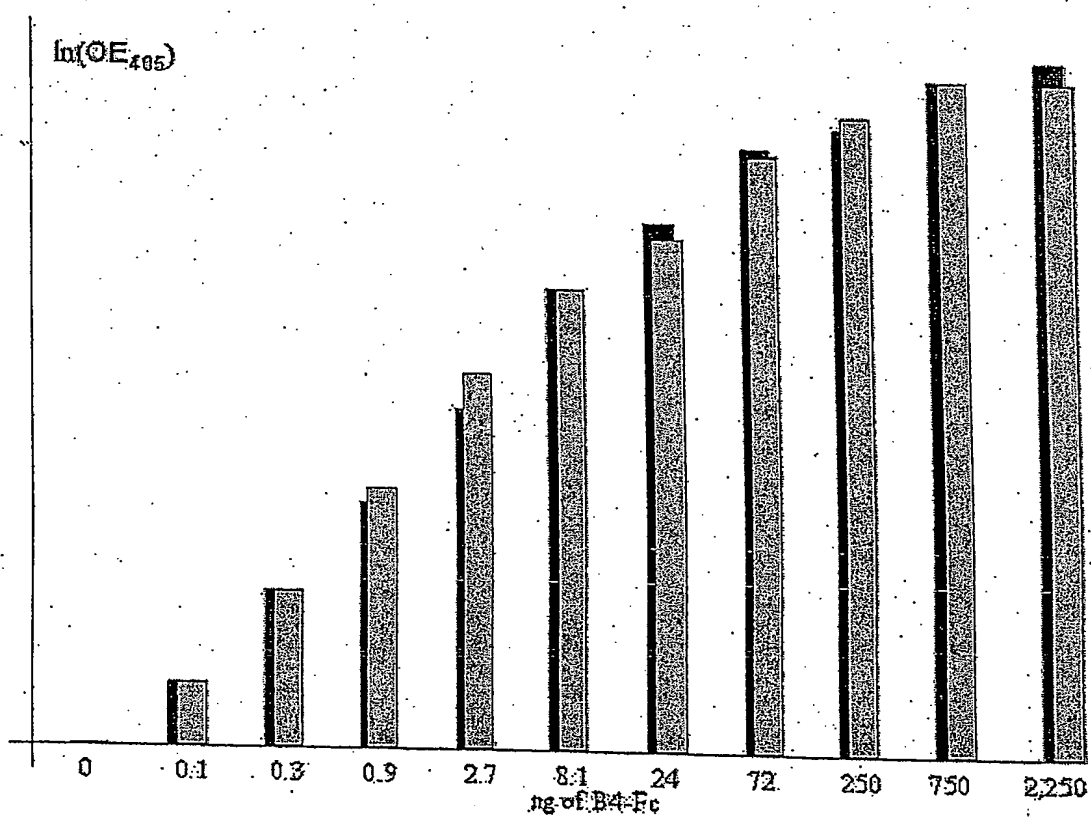
Figure 4. Amino acid sequence of the B4ECv3-FC protein

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GLKRGASYLVQVRARSEAGYGPFGEHHSQTQLDESEGWREQDPE  
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VVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVL  
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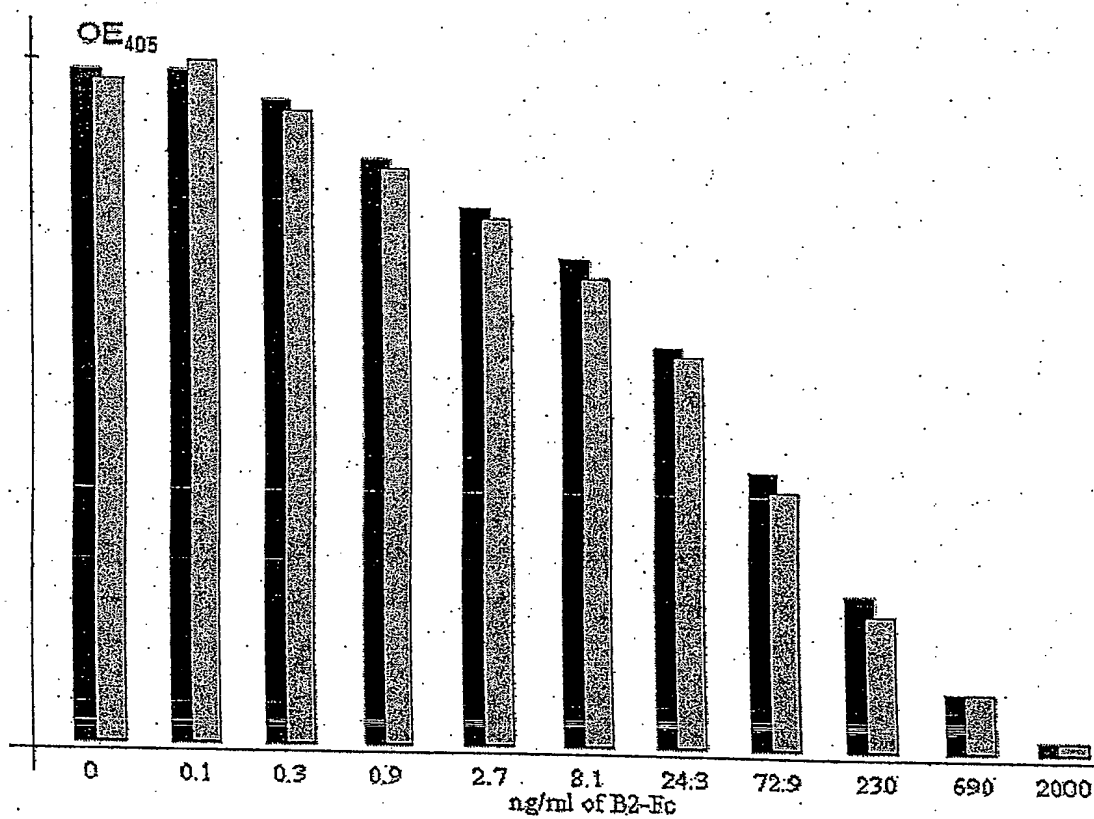
Figure 5. Amino acid sequence of the B2EC-FC protein

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NGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPE  
LEAGTNGRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVDPEPK  
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DVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLH  
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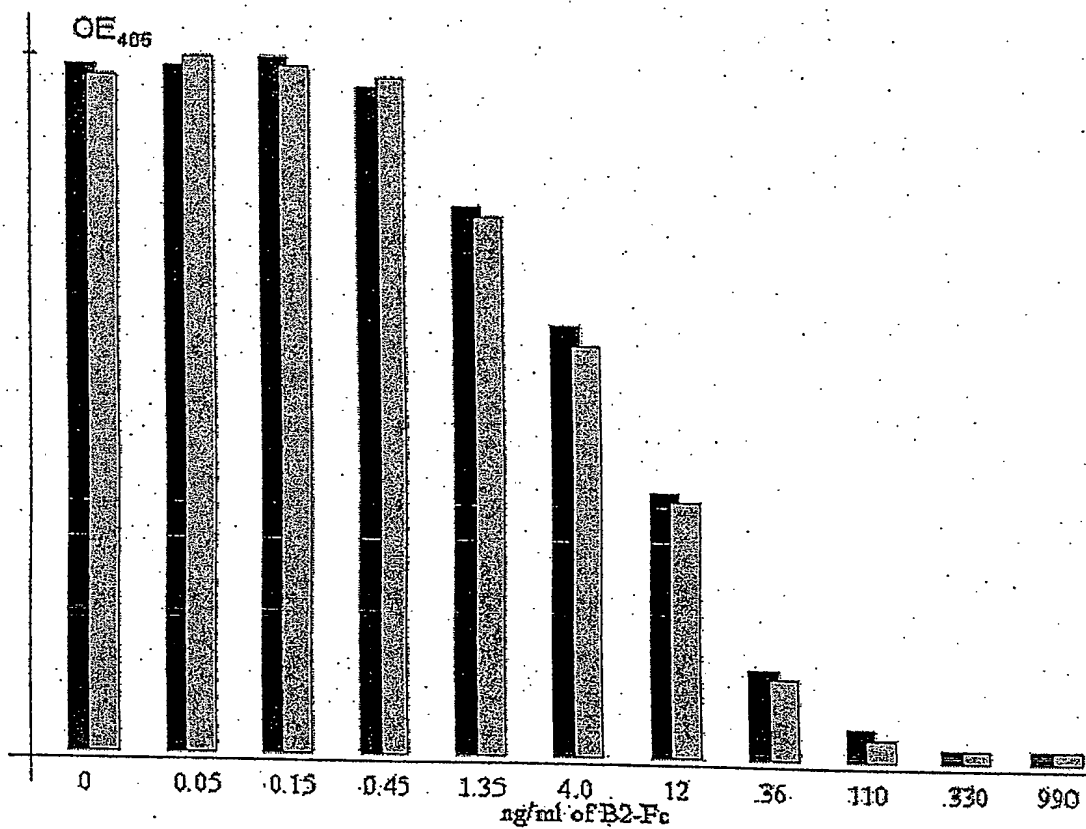
**Fig. 6. B4EC-FC binding assay (Protein A-agarose based)**



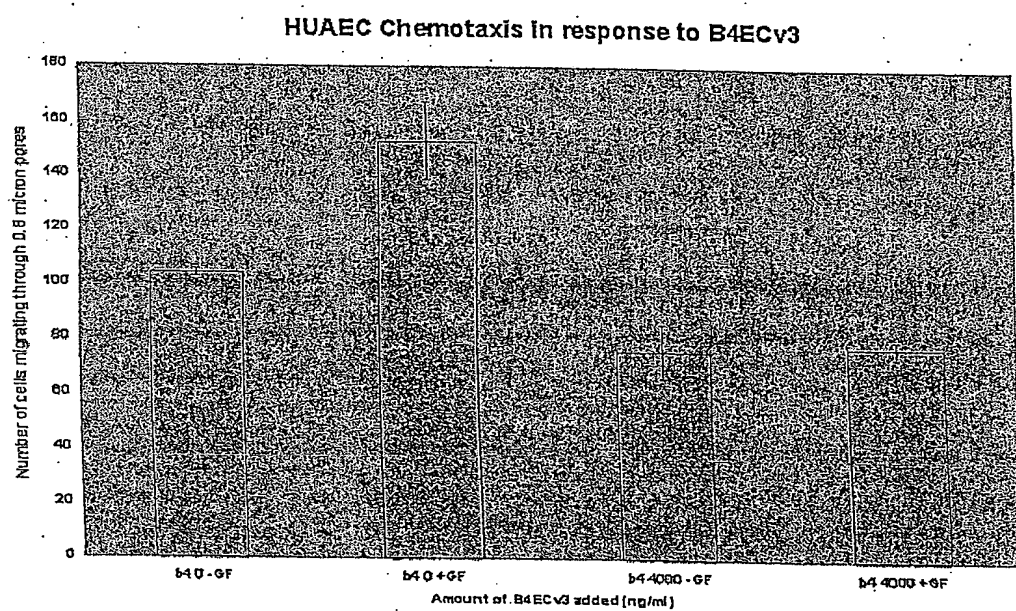
**Fig. 7. B4EC-FC inhibition assay (Inhibition in solution)**



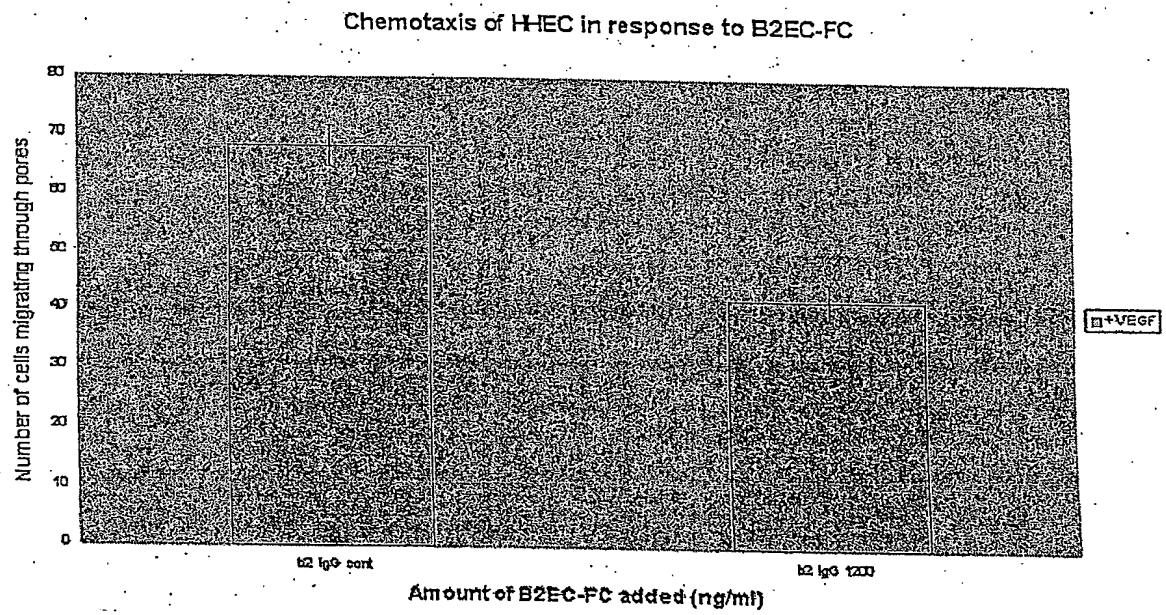
**Fig. 8. B2EC-FC binding assay (Protein-A-agarose based assay)**



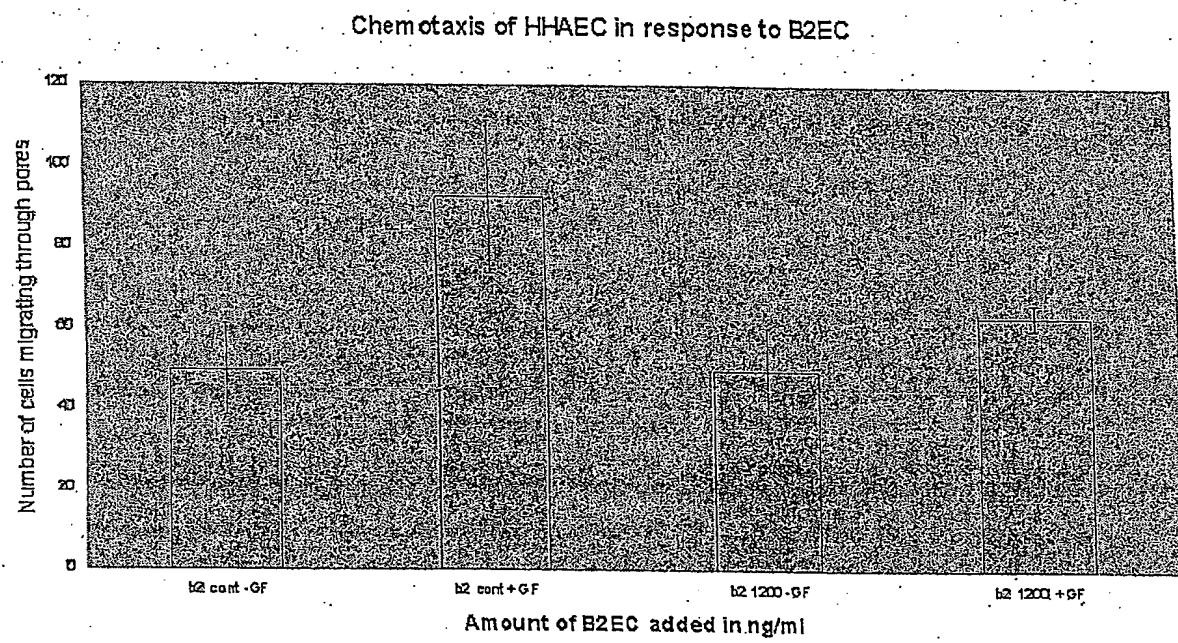
**Fig. 9**



**Fig. 10**



**Fig. 11**





**Fig. 12**

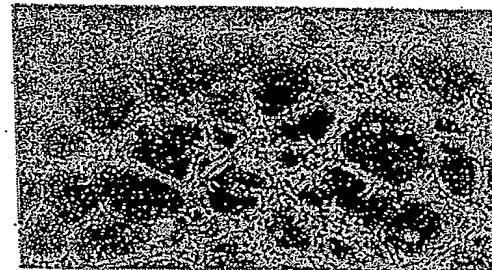
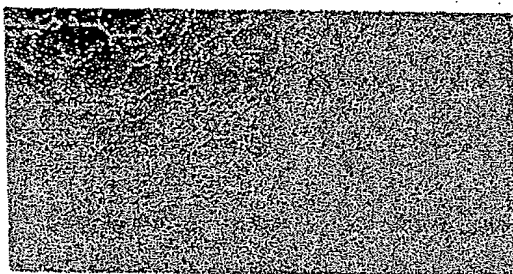
**Effect of B4ECv3 on HUAEC Tubule Formation**

**B4ECv3  
μg/ml**

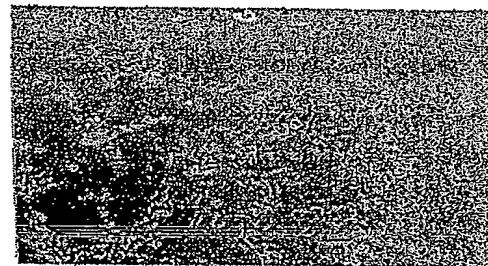
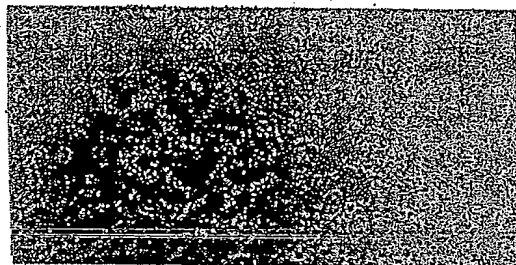
**10 x magnification**

**20 x magnification**

**0**

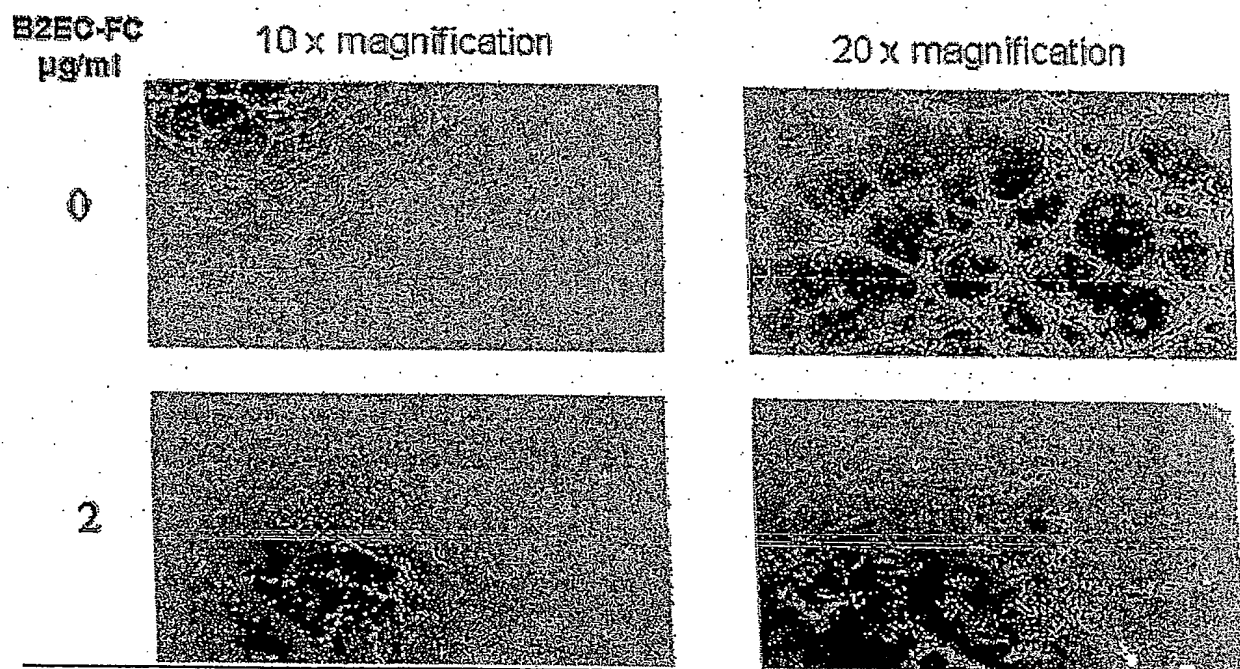


**2**



**Fig. 13**

**Effect of B2EC-FC on HUAEC Tubule Formation**



# hEphrin B2 constructs

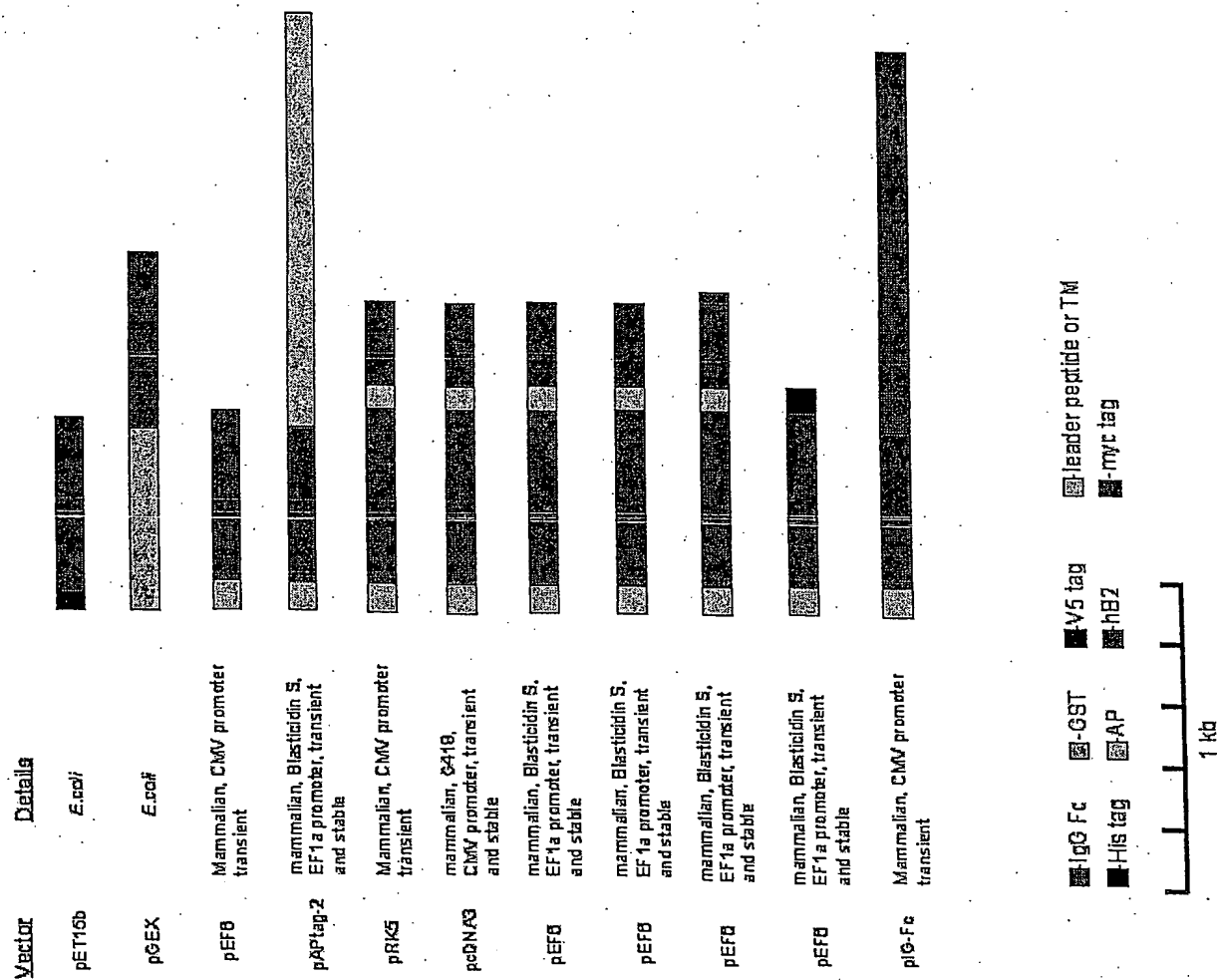


Figure 14

## hEph B4 constructs

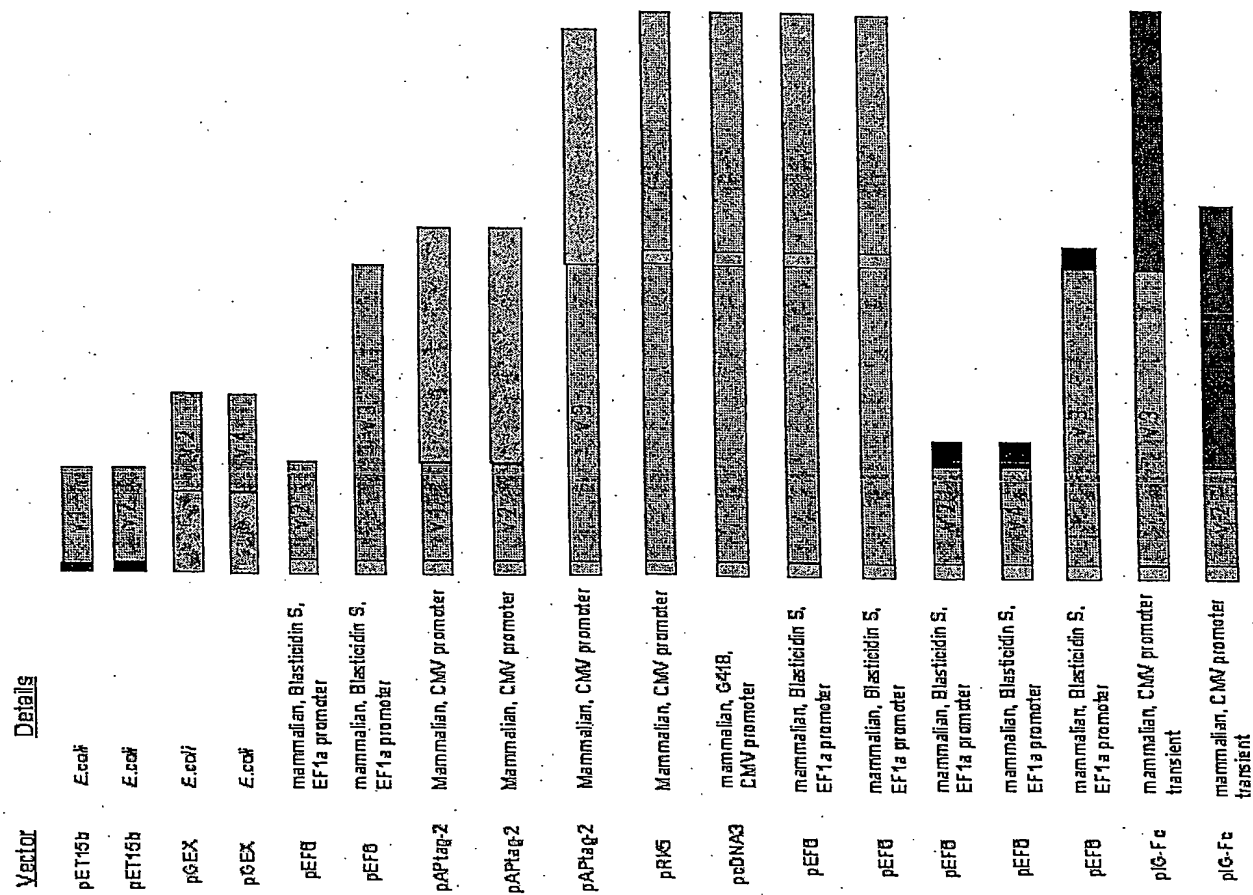


Figure 15

Figure 16. Domain structure of the recombinant soluble EphB4EC proteins.

Fig.1

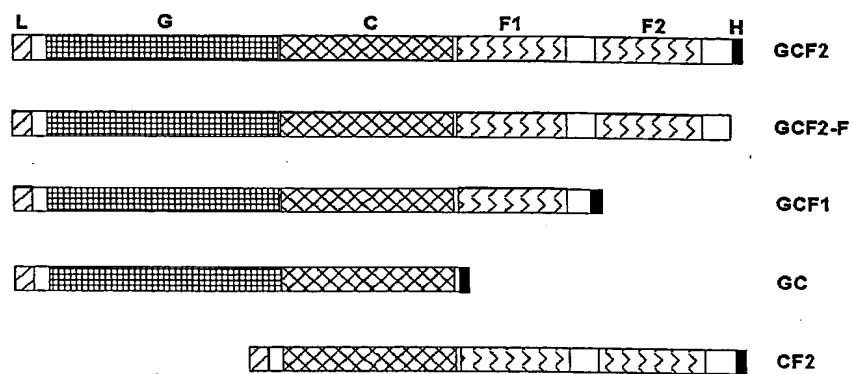


Figure 17A. Purification and ligand binding properties of the EphB4EC proteins

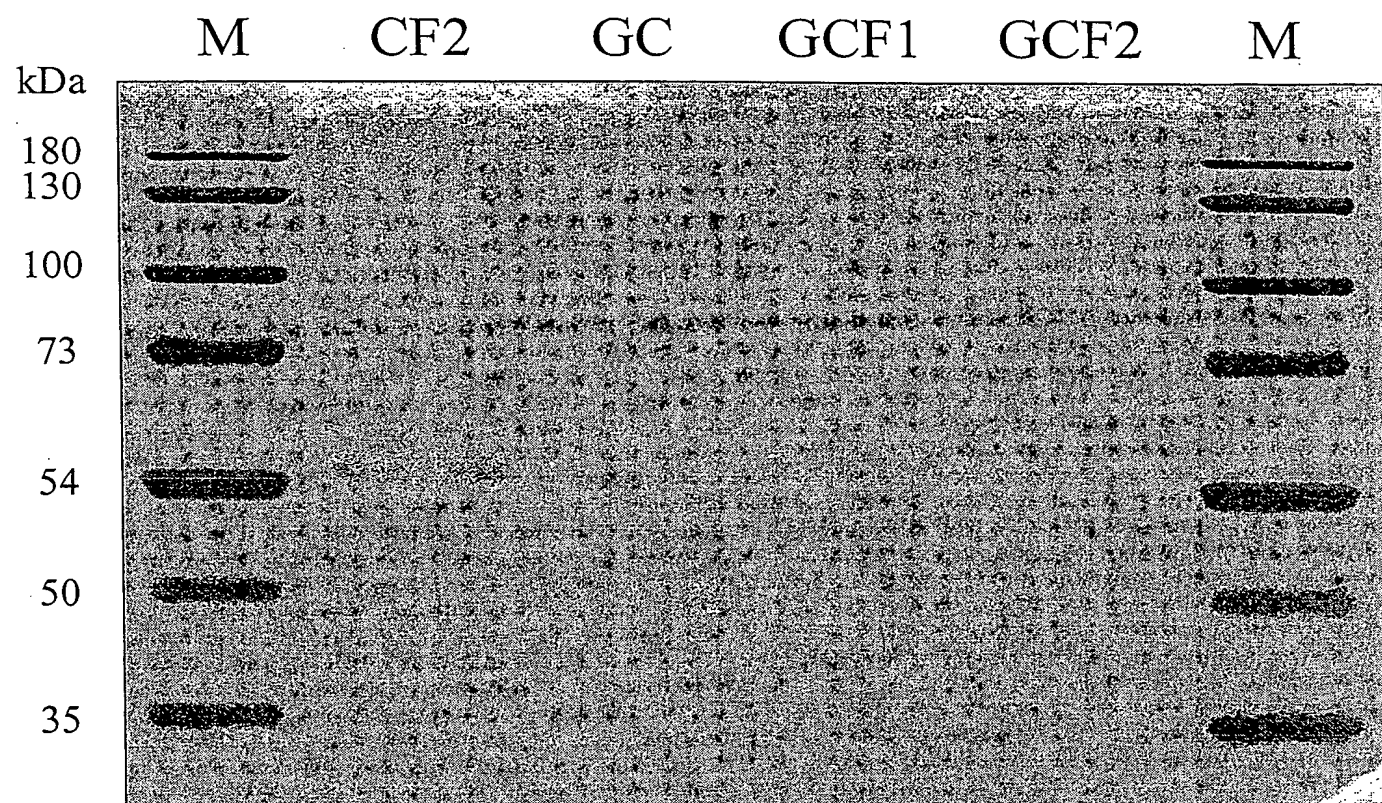
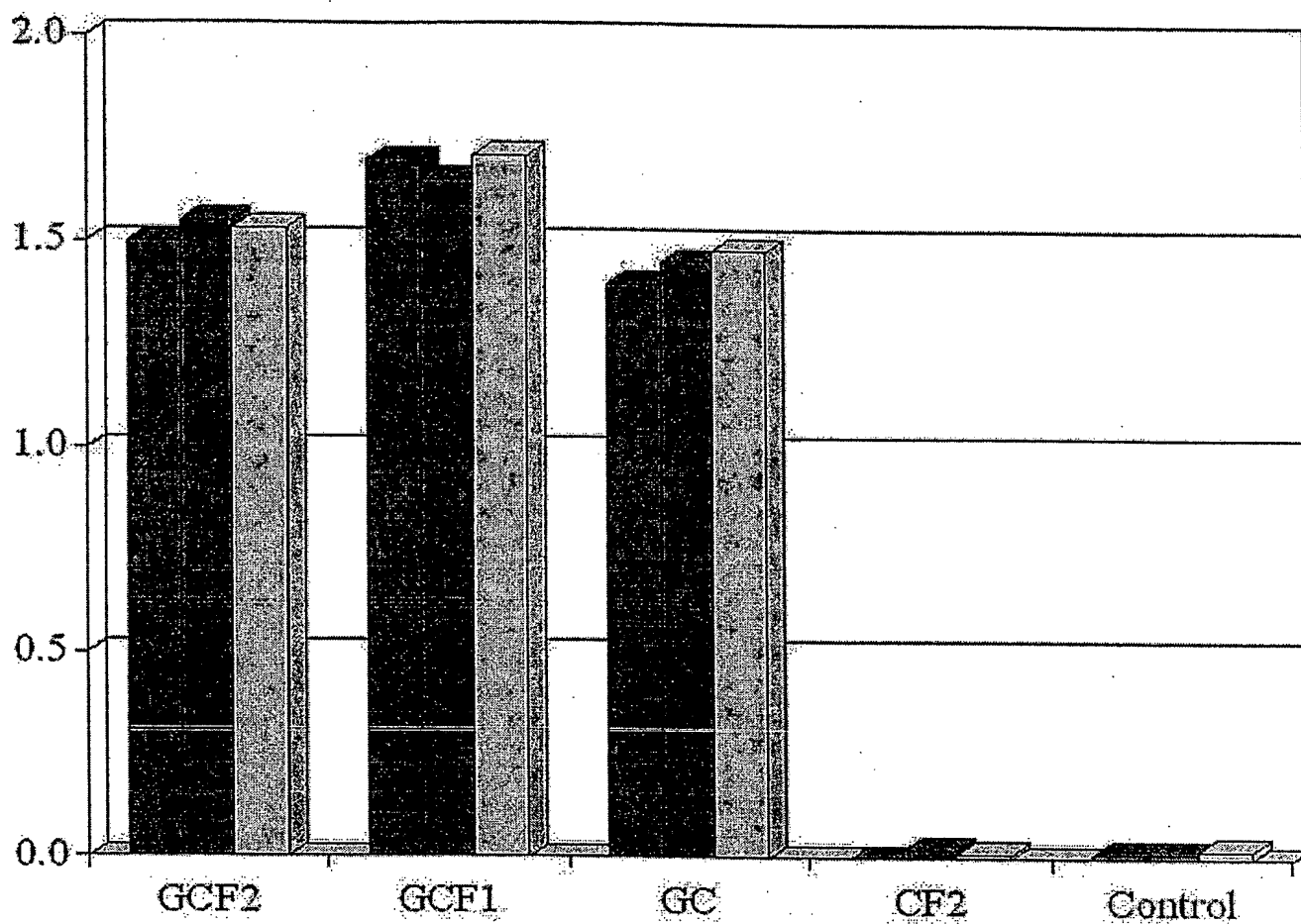
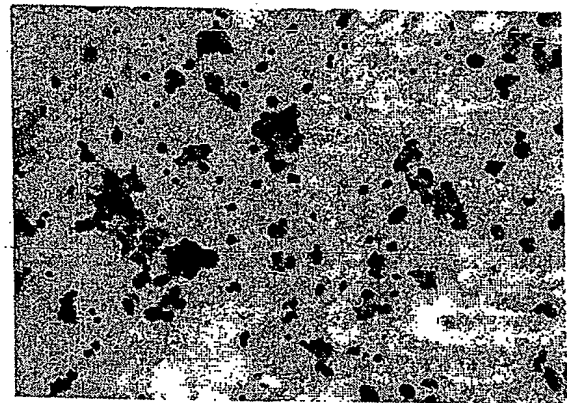
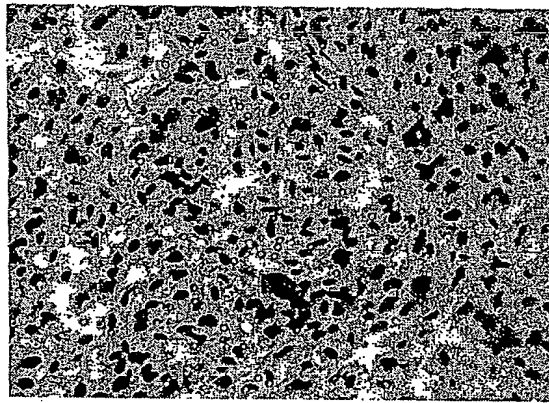
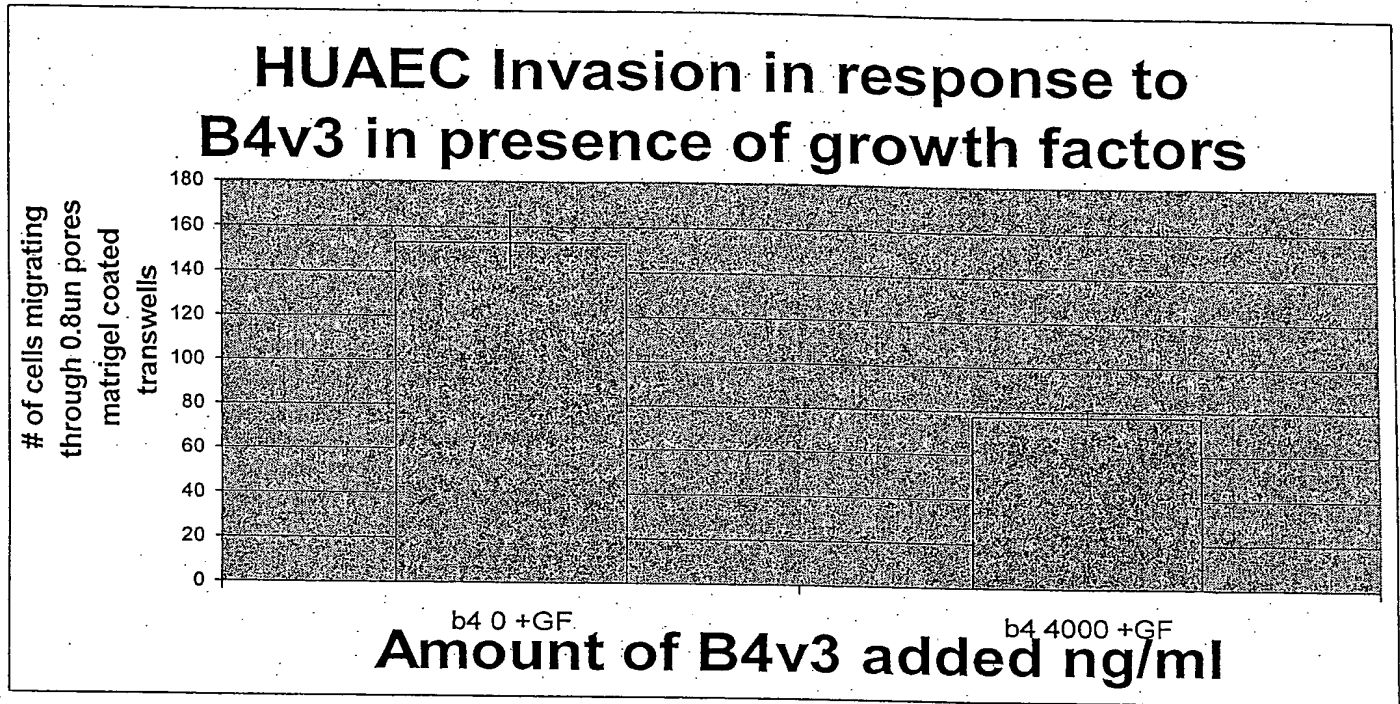


Figure 17B. Binding of Ephrin B2-AP fusion to EphB4-derived recombinant proteins immobilized on NTA-agarose beads.



**Fig. 18**

## **B4v3 inhibits chemotaxis, In Vitro Invasion Assay**



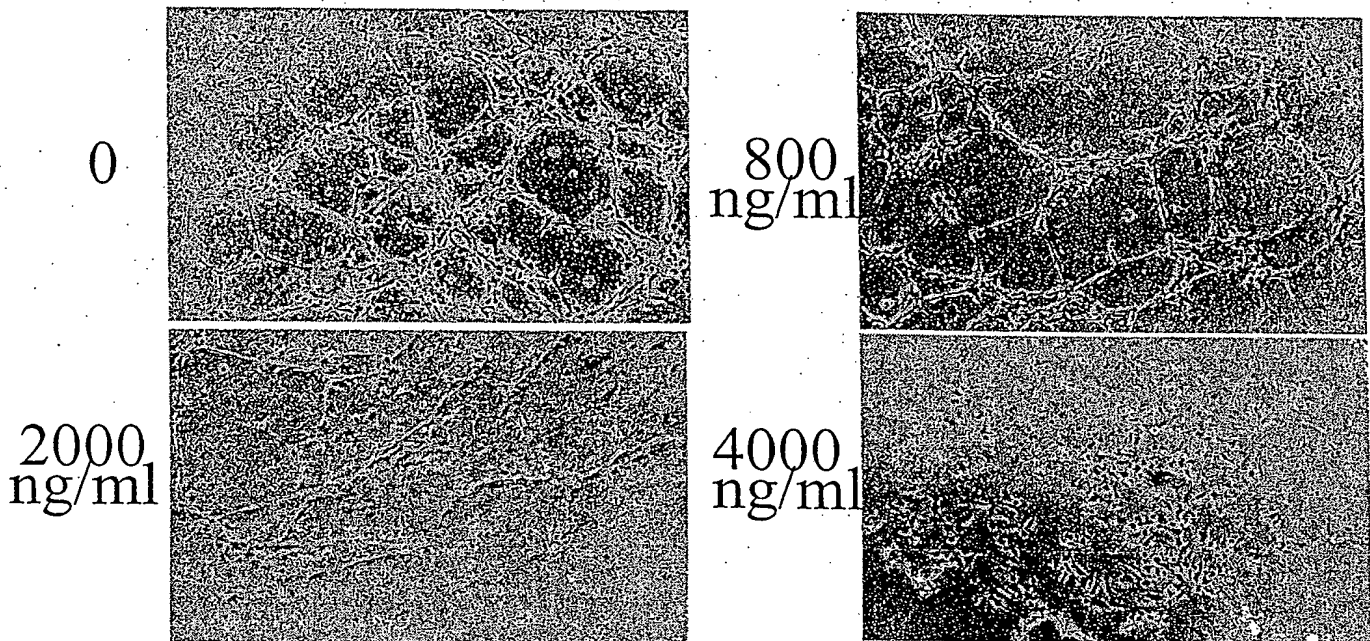
**In Vitro Invasion Assay:** Chemotaxis of HUAECs, measuring migration and degradation of basement membrane ability, was assessed using a modified Boyden chamber, transwell membrane filter inserts in 24 well plates; 6.5 mm diam, 8µm pore size, 10µm thick polycarbonate membranes. The upper surfaces of the transwell were pre-coated with matrigel. The cell suspensions of HUAECs in 0.25% BSA ( $2 \times 10^5$  cells/ml) in 200µl of EBM were seeded in the upper chamber and the B4v3 protein was added simultaneously with stimulant (VEGF or bFGF) to the lower compartment of the chamber and their migration across a polycarbonate filter in response to 10-20 ng/ml of VEGF with or without 100nM-1µM test compound was investigated. After incubation for 4-24h at 37, The upper surface of the filter was scraped with swab and filters were fixed and stained with Diff Quick. Triplicate. Ten random fields at 200x mag were counted and the results expressed as mean # per field



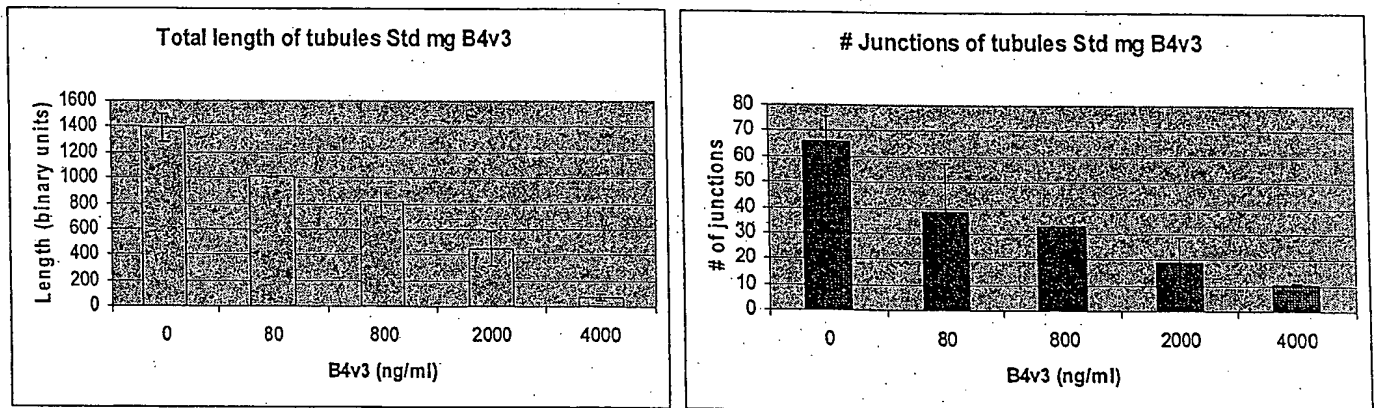
**Fig. 19**

## **B4v3 inhibits tubule formation on Matrigel.**

**A**



**B**



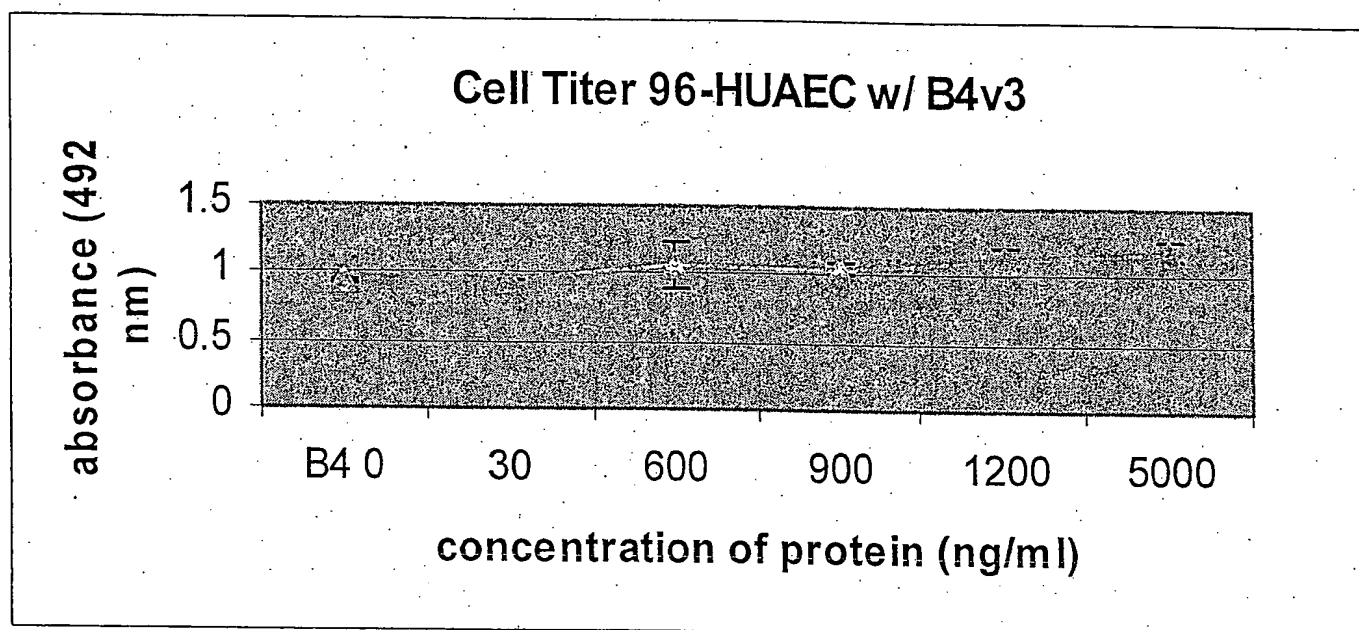
### **B4v3 inhibits tubule formation on Matrigel.**

HUAEC cultures were cultured with B4v3, at 800, 2000, and 4000 ng/ml following seeding on STD matrigel in growth factor stimulated conditions, to analyze tubule formation. Cells were photographed 6h and 24h after seeding, 20X magnification, and the total length of the tubule-like network formed in the well, and # of junctions was established.

A, displays the strong inhibition of tubule formation by B4v3 in a representative experiment.

B, shows a quantitation, with AngioSys Software, of the reduction of tube-length obtained with B4v3 at increasing concentrations as well as a reduction in the number of junctions, in comparison to cells with no protein. Results are displayed as mean values  $\pm$  S.D. obtained from three independent experiments performed with duplicate wells.

**Fig. 20**

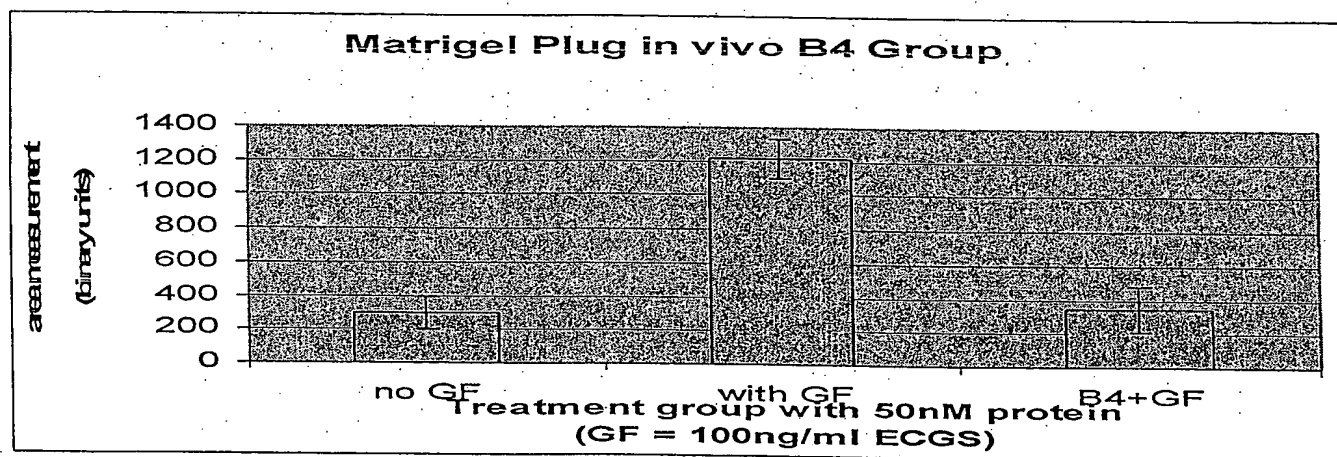
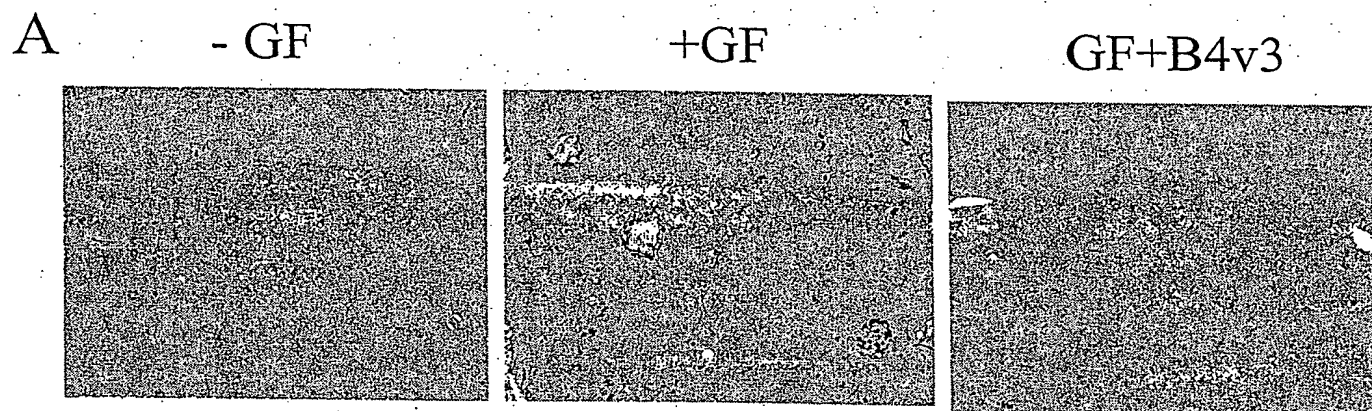


**Cell viability assays:**

Cell viability was determined using the (3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2*H*-tetrazolium, inner salt (MTS) assay according to the instructions of the manufacturer (Promega, Madison, WI, USA).

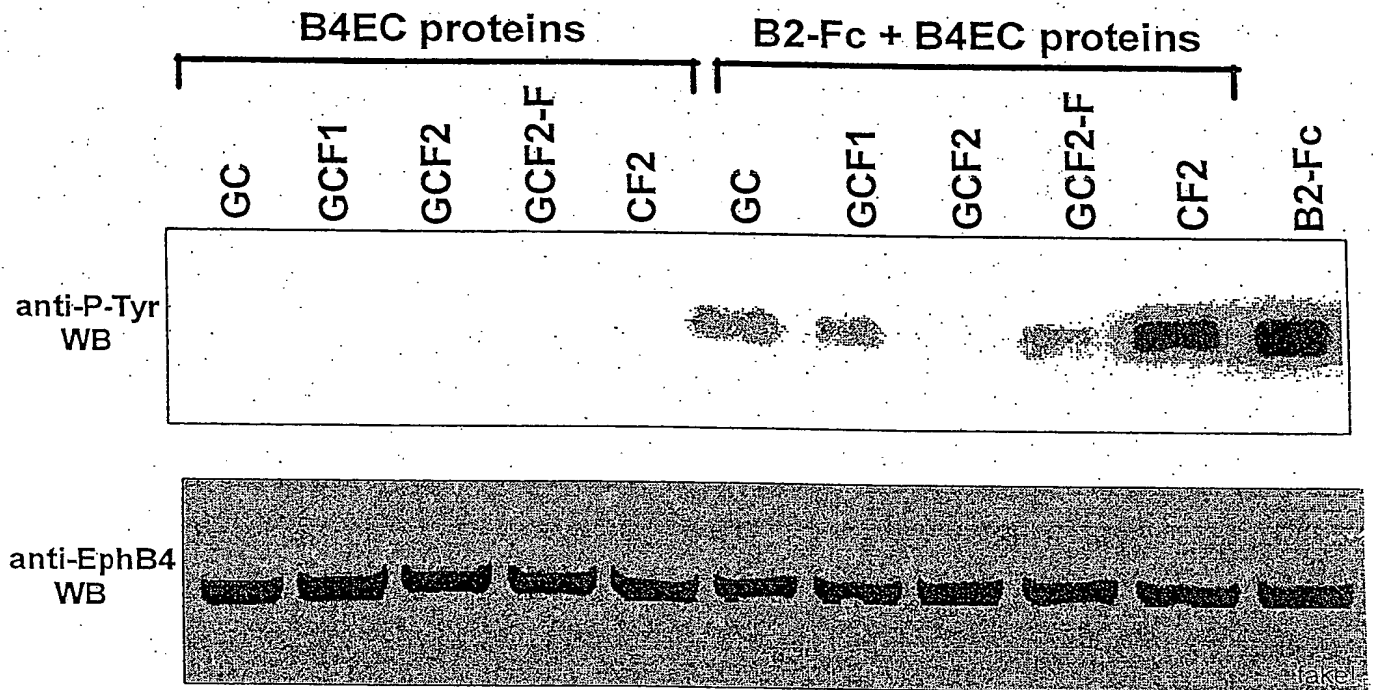
**Fig. 21**

## B4v3 inhibits invasion and tubule formation by endothelial cells in the Murine Matrigel assay



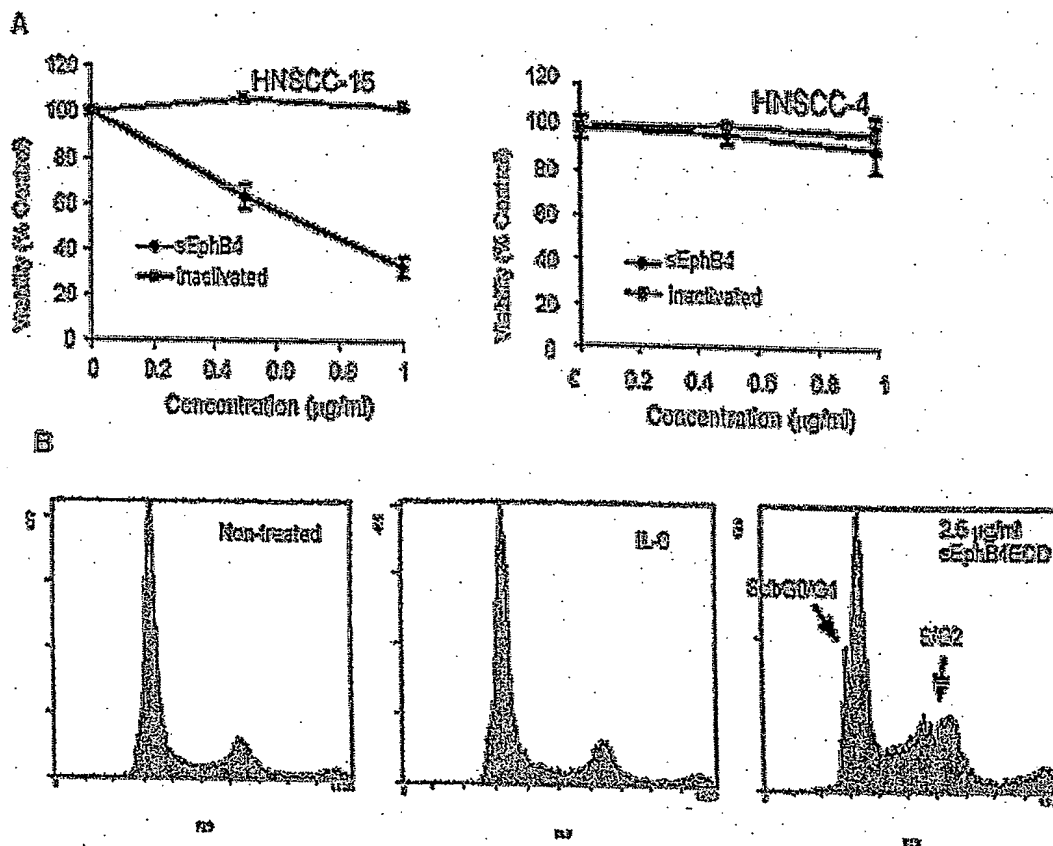
**B4v3 inhibits invasion and tubule formation by endothelial cells in the murine Matrigel assay.** B4v3 (50nM) was added to Matrigel solution containing ECGS (150ng/ml) and injected subcutaneously into BalbC nu/nu mice. After 6 days plugs were removed and processed in paraffin. Individual sections were either stained with hematoxylin (A) to detect total invading cells, photographed at 20X magnification or with Masson's Trichrome. Top left of A B displays section of a Matrigel plug with no GF, top right of A displays section with B4IgG containing GF and lower left section contains GF, and lower right shows GF in the presence of B4v3. Significant invasion of endothelial cells is only seen in GF containing Matrigel. Top right displays an area with a high number of invaded cells induced by B4IgG, which signifies the dimeric form of B4v3. The left upper parts of the pictures correspond to the cell layers formed around the Matrigel plug from which cells invade toward the center of the plug located in the direction of the right lower corner. Total cells in sections of the Matrigel plugs were quantitated with Scion Image software. Results obtained from two experiments with duplicate plugs are displayed as mean values  $\pm$  S.D.

Fig. 22



Tyrosine phosphorylation of EphB4 receptor in PC3 cells in response to stimulation with EphrinB2-Fc fusion in presence or absence of EphB4-derived recombinant soluble proteins.

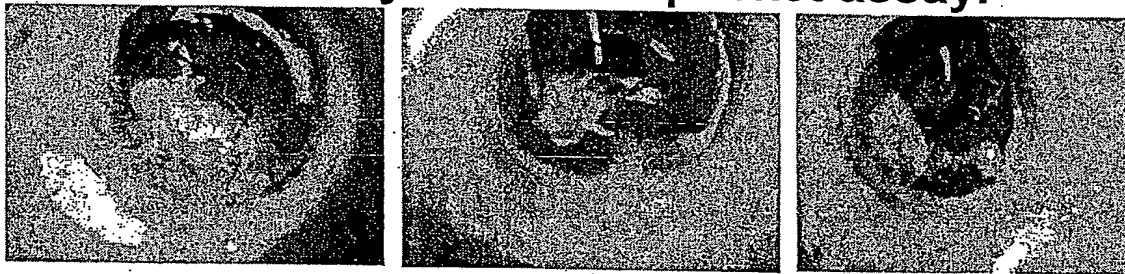
**Fig. 23**



**Soluble EphB4ECD effects on viability and cell cycle.** A) 3-day cell viability assay of two HNSCC cell lines. Cells were seeded on 48-well plates at equal densities and treated with 0, 0.5 or 1 µg/ml sEphB4ECD. Viability was determined on day 3 by MTT assay. Shown is the mean and SEM of triplicate samples. B) FACS analysis of cell cycle in HNSCC-15 cells treated as in A. It was previously determined that IL-6 had no inhibitory effect on viability. Treatment of these cells resulted in an accumulation in subG0/G1 and G2 phases as indicated by the arrows.

**Fig. 24**

**B4v3 inhibits neovascular response in a murine corneal hydon micropocket assay.**



**+GF**

**B4**

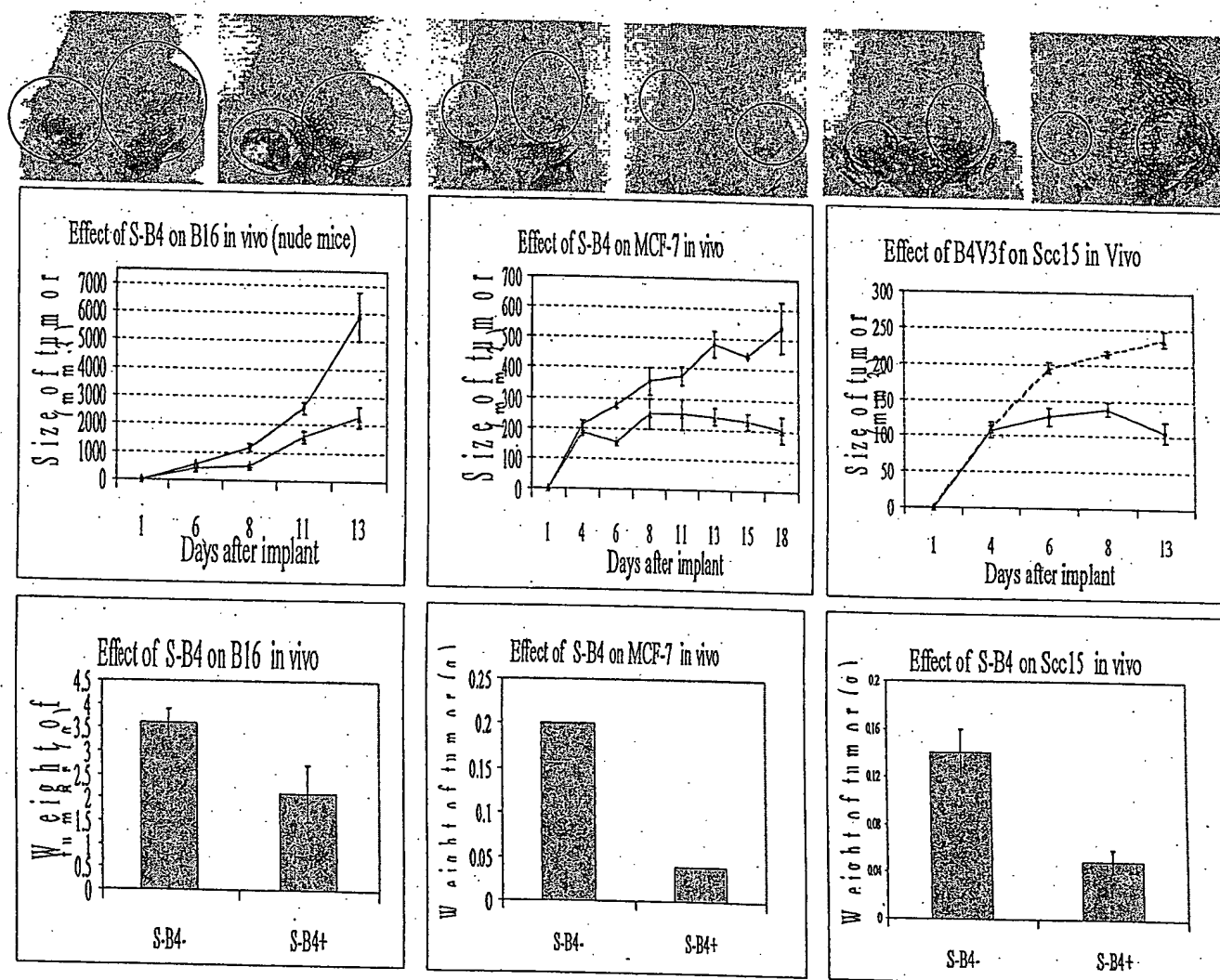
**-GF**

**+GF**

**B4v3 inhibits neovascular response in a murine corneal hydon micropocket assay.**

**B4v3** (180ng) was added to hydon and sucralfate (45ug) with or without basic fibroblast growth factor (bFGF) (100ng) and pellets formed. The pellets were selected and inserted into a micropocket into corneas of BalbC nu/nu mice. After 3 days pellets were removed and processed in freezing compound. Only the bFGR-sucralfate pellet, top left, induced an intense neovascular response originating from the limbal vessels and reaching the pellet on day 3 after implantation. Pellets containing bFGF and sucralfate with B4v3 and B4f, top right and bottom left respectively, did not produce an angiogenic response above background, lower right, on day 3 after implantation.

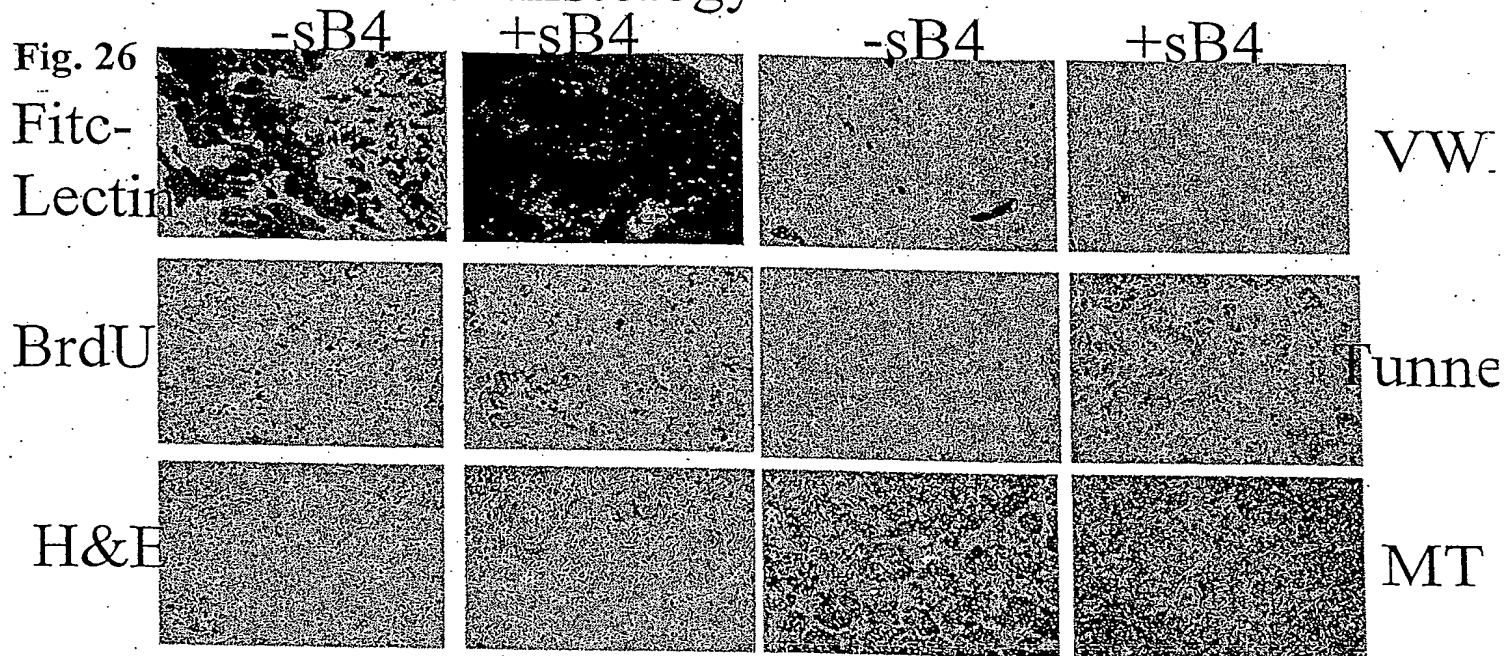
Fig. 25



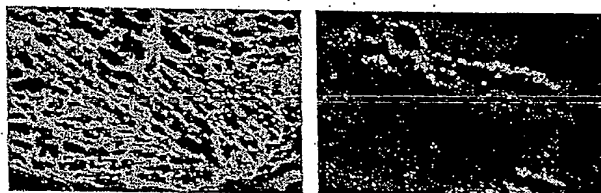
SCC15, B16, and MCF-7 co-injected with sB4v3 in the presence of matrigel and growth factors, inhibits the *in vivo* tumor growth of these cells. (A) sB4v3, 40mg per kg body weight were subcutaneously coinjected with  $\times 10^6$  cells in a matrigel preparation. The representative picture shows retarded tumor growth in the presence of sB4 (left flank) compared with PBS control treatment (right flank). (B) Treatment with sB4 significantly inhibited human SCC, B16, and MCF-7 tumor growth compared with control-treated mice ( $p < 0.05$ ). (C) Treatment with sB4 significantly inhibited tumor weight compared with control-treated mice ( $p < 0.05$ ). Data are expressed as mean  $\pm$  SEM. \* $p < 0.05$



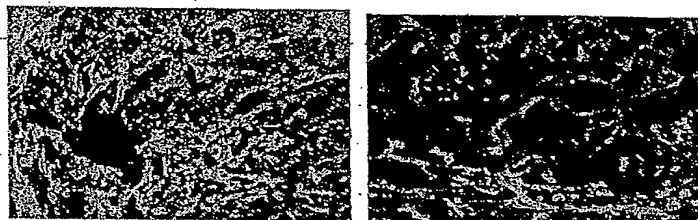
## SCC15 Tumor histology



B16



Mcf-7



Soluble EphB4 causes apoptosis, necrosis and decreased angiogenesis in three tumor types, B16 melanoma, SCC15, head and neck carcinoma, and MCF-7 Breast carcinoma. Tumors were injected premixed with Matrigel plus growth factors and soluble EphB4 subcutaneously. After 10 to 14 days, the mice were injected intravenously with fitc-lectin (green) to assess blood vessel perfusion. Tumors treated with control PBS displayed abundant tumor density and a robust angiogenic response. Tumors treated with sEphB4 displayed a decrease in tumor cell density and a marked inhibition of tumor angiogenesis in regions with viable tumor cells, as well as tumor necrosis and apoptosis.



Figure 27

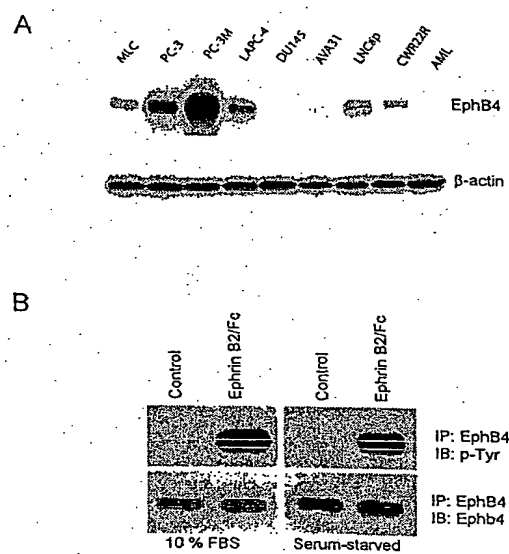
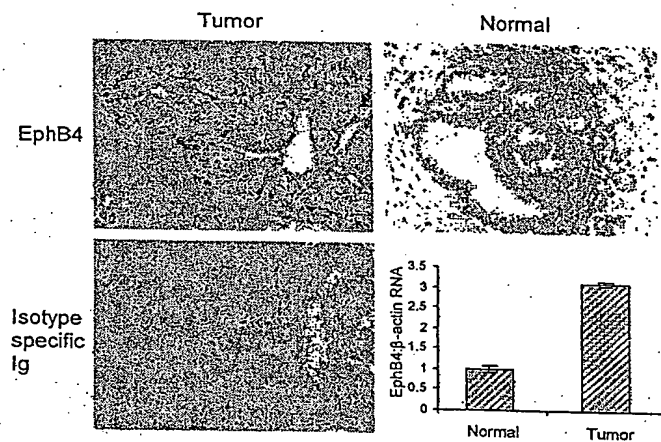


Figure 28



EPHB4 staining in prostate tissues array		
	negative	positive
Normal (n = 20)	17	3
Tumor (n = 32)	8	24

$P = 3.8 \times 10^{-5} \chi^2$  analysis

Figure 29

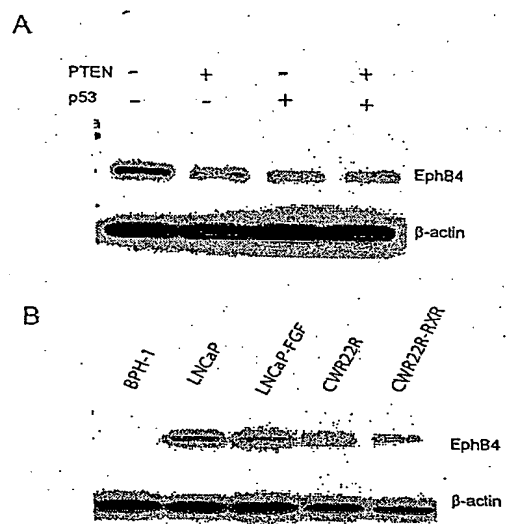


Figure 30

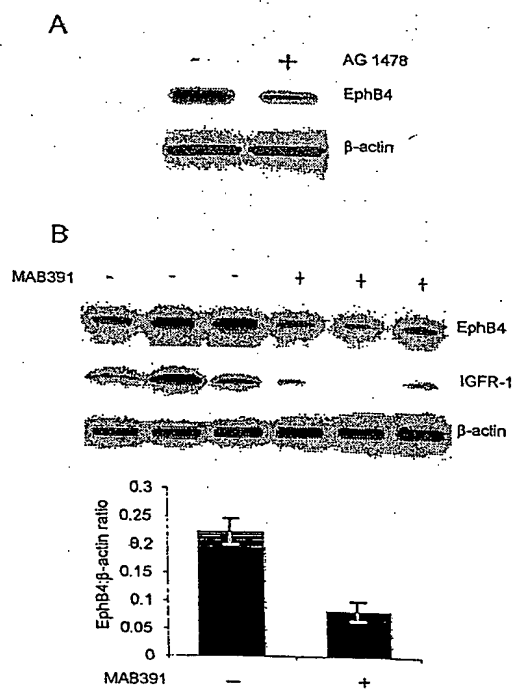


Figure 31

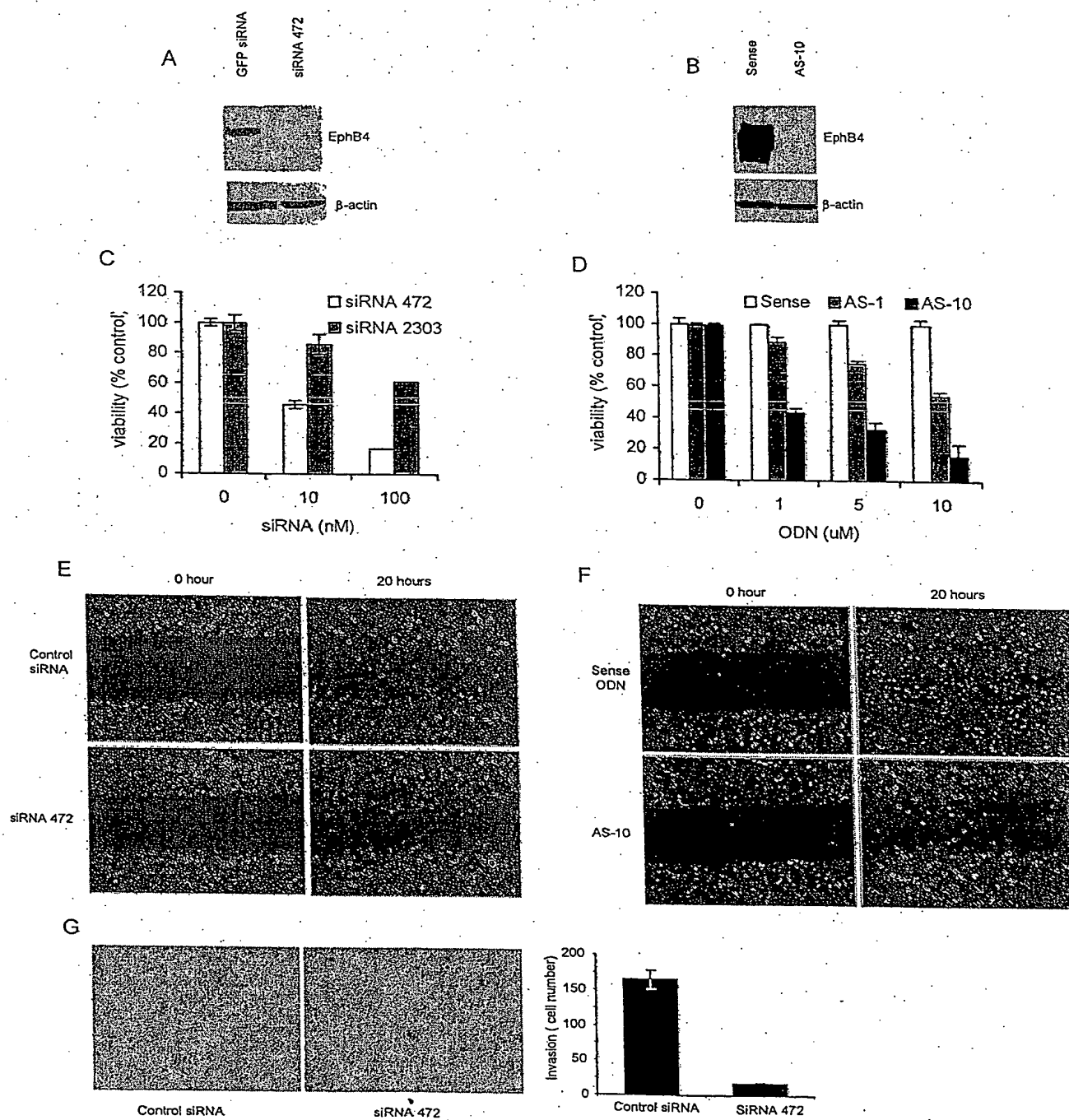
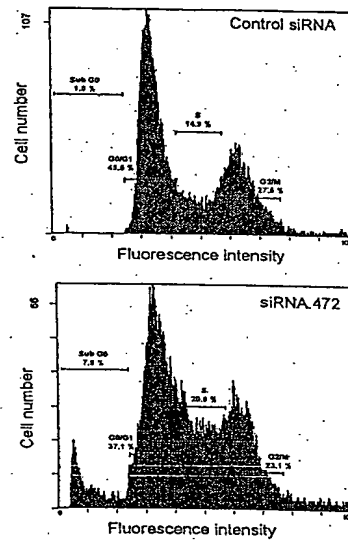
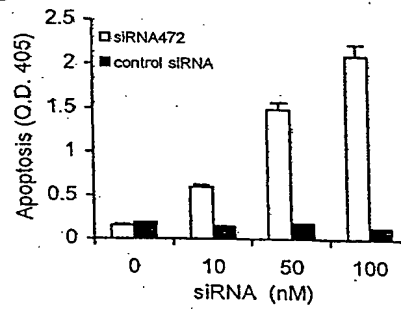


Figure 32

A

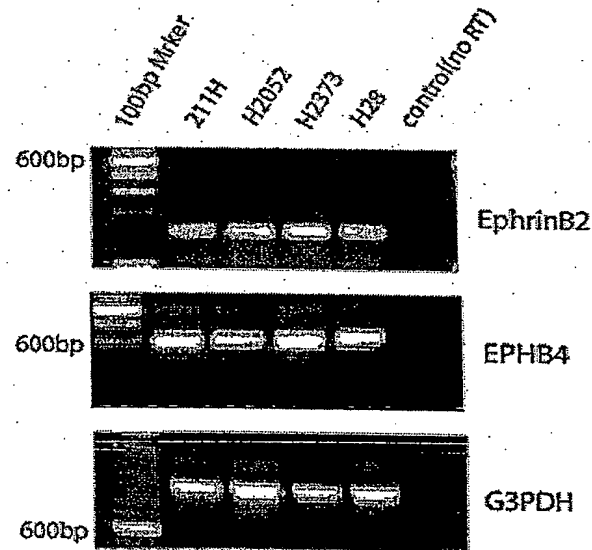


B



# Figures and Legends

A.



B.

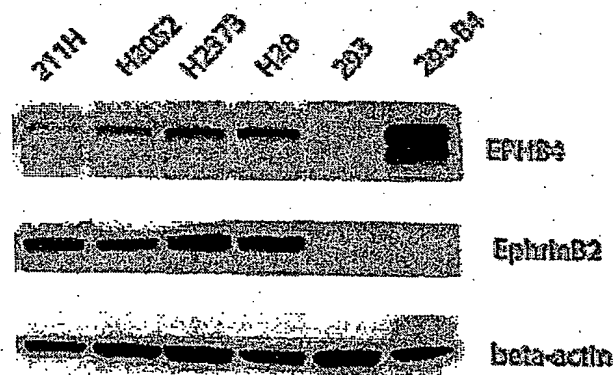


Fig. 33

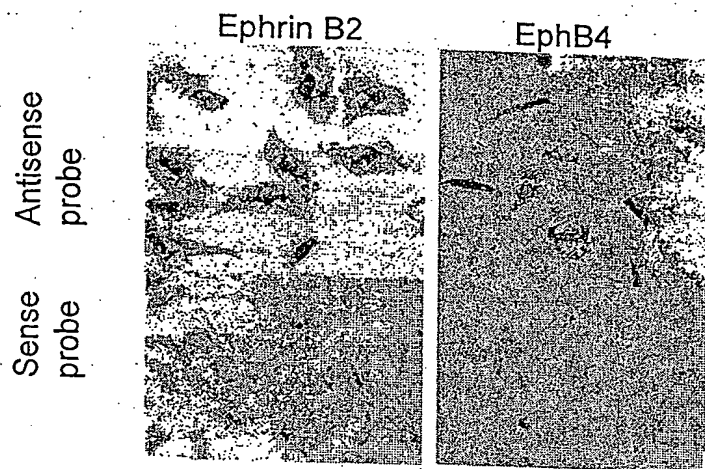


Fig. 34. Expression of ephrin B2 and EphB4 by in situ hybridization in mesothelioma cells. NCI H28 mesothelioma cell lines cultured in chamber slides hybridized with antisense probe to ephrin B2 or EphB4 (top row). Control for each hybridization was sense (bottom row). Positive reaction is dark blue cytoplasmic stain.



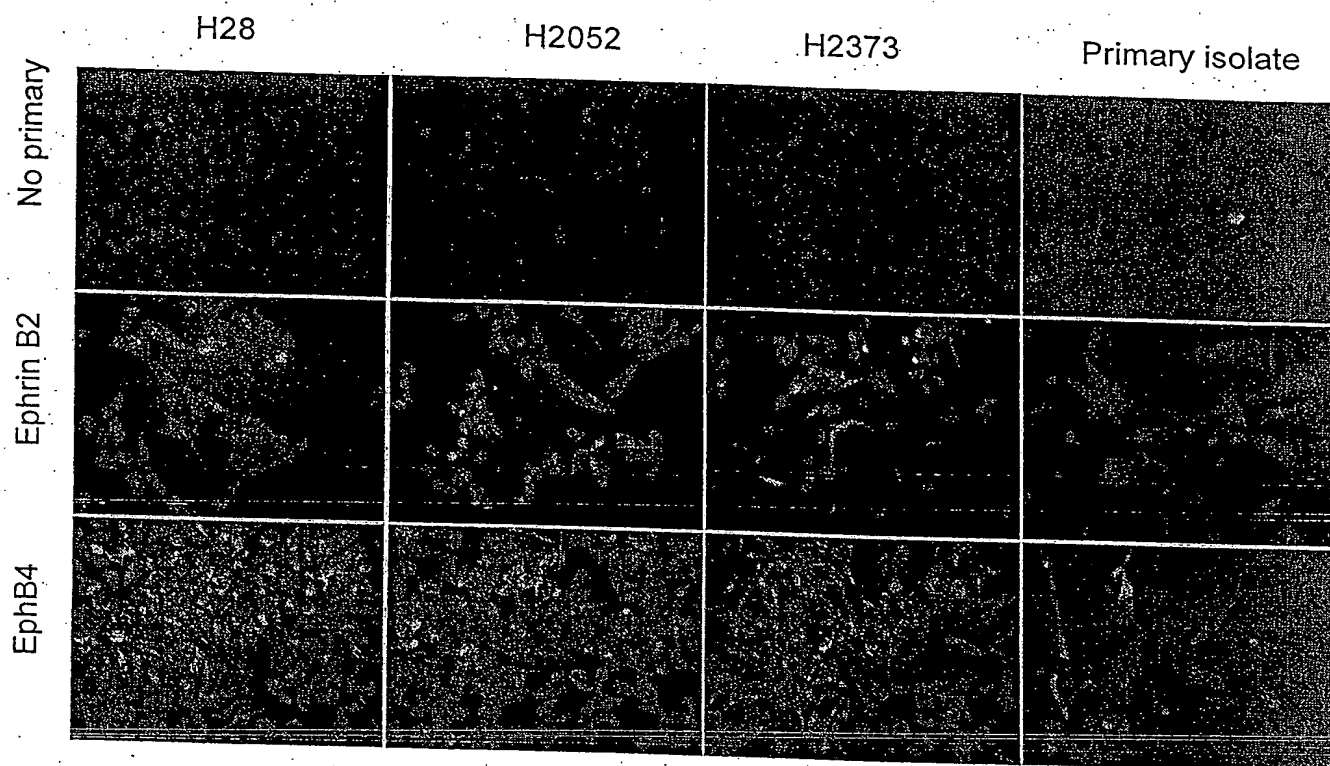


Fig. 35. Cellular expression of EphB4 and ephrin B2 in mesothelioma cultures. Immunofluorescence staining of primary cell isolate derived from pleural effusion of a patient with malignant mesothelioma and cell lines NCI H28, NCI H2373, and NCI H2052 for ephrin B2 and EphB4. Green color is positive signal for FITC labeled secondary antibody. Specificity of immunofluorescence staining was demonstrated by lack of signal with no primary antibody (first row). Cell nuclei were counterstained with DAPI (blue color) to reveal location of all cells. Shown are merged images of DAPI and FITC fluorescence. Original magnification 200X.

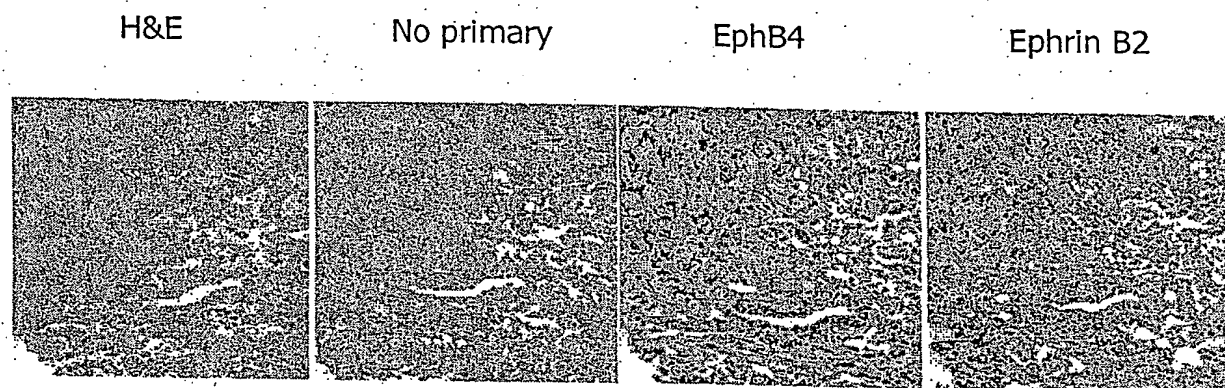
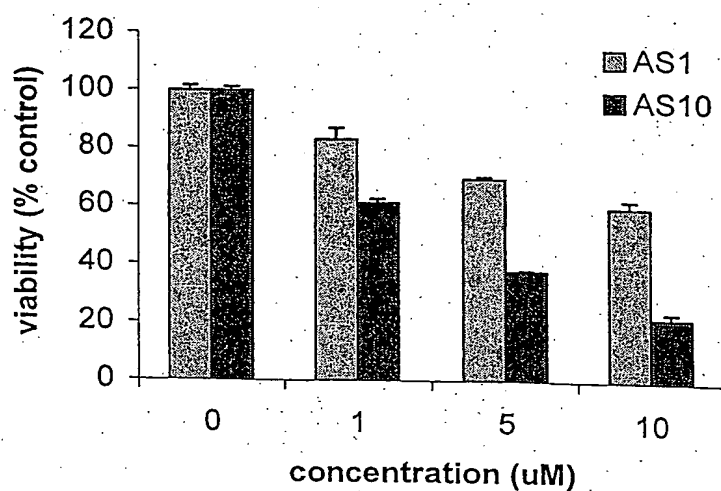


Fig. 36. Expression of ephrin B2 and EphB4 in mesothelioma tumor. Immunohistochemistry of malignant mesothelioma biopsy. H&E stained section to reveals tumor architecture; bottom left panel is background control with no primary antibody. EphB4 and ephrin B2 specific staining is brown color. Original magnification 200X.

A.

Effect of EPHB4 antisense ODN  
on the growth of H28 cells



B.

Effect of EPHB4 siRNA 472 on the growth of H28 cells

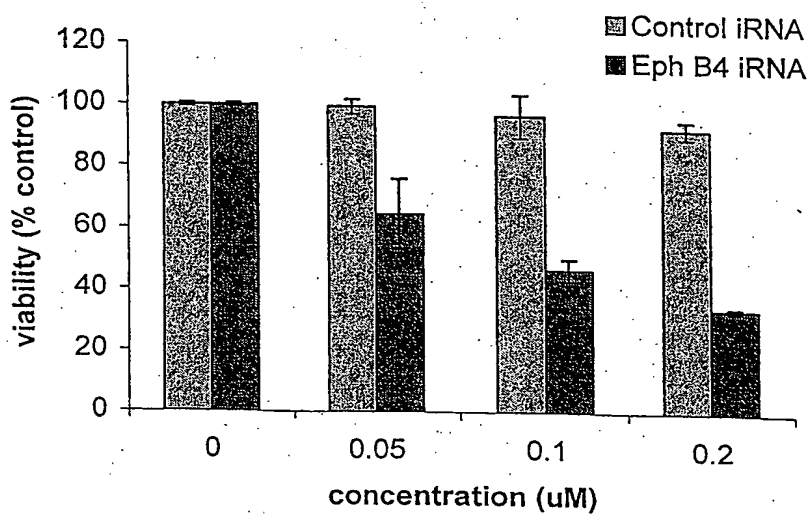
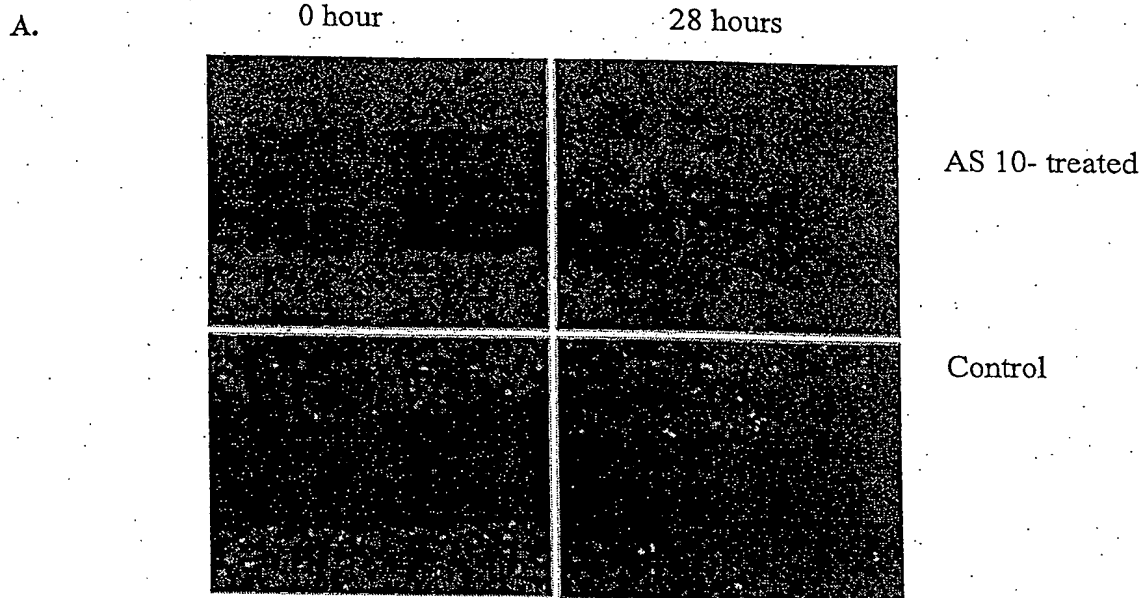


Fig. 37



B. Migration Study of H28 with siRNA472(Boyden Chamber)

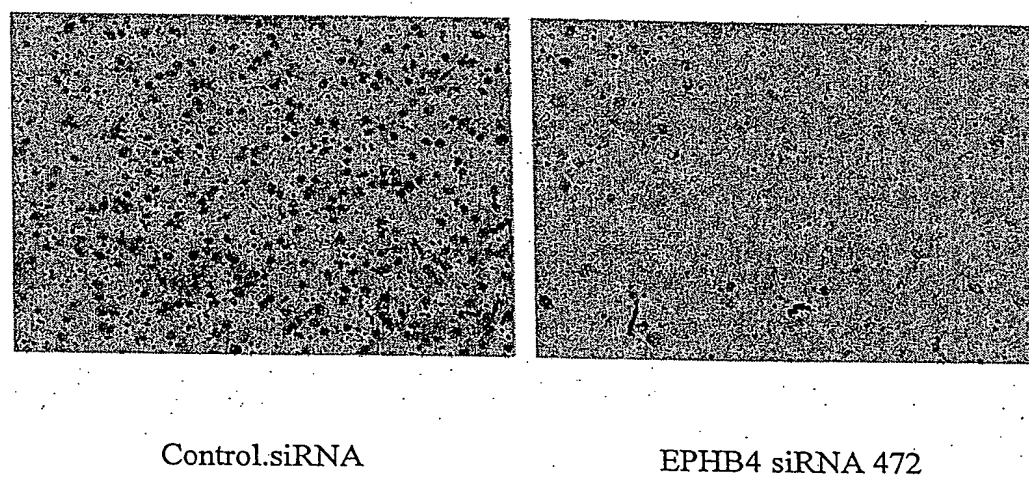


Fig. 38

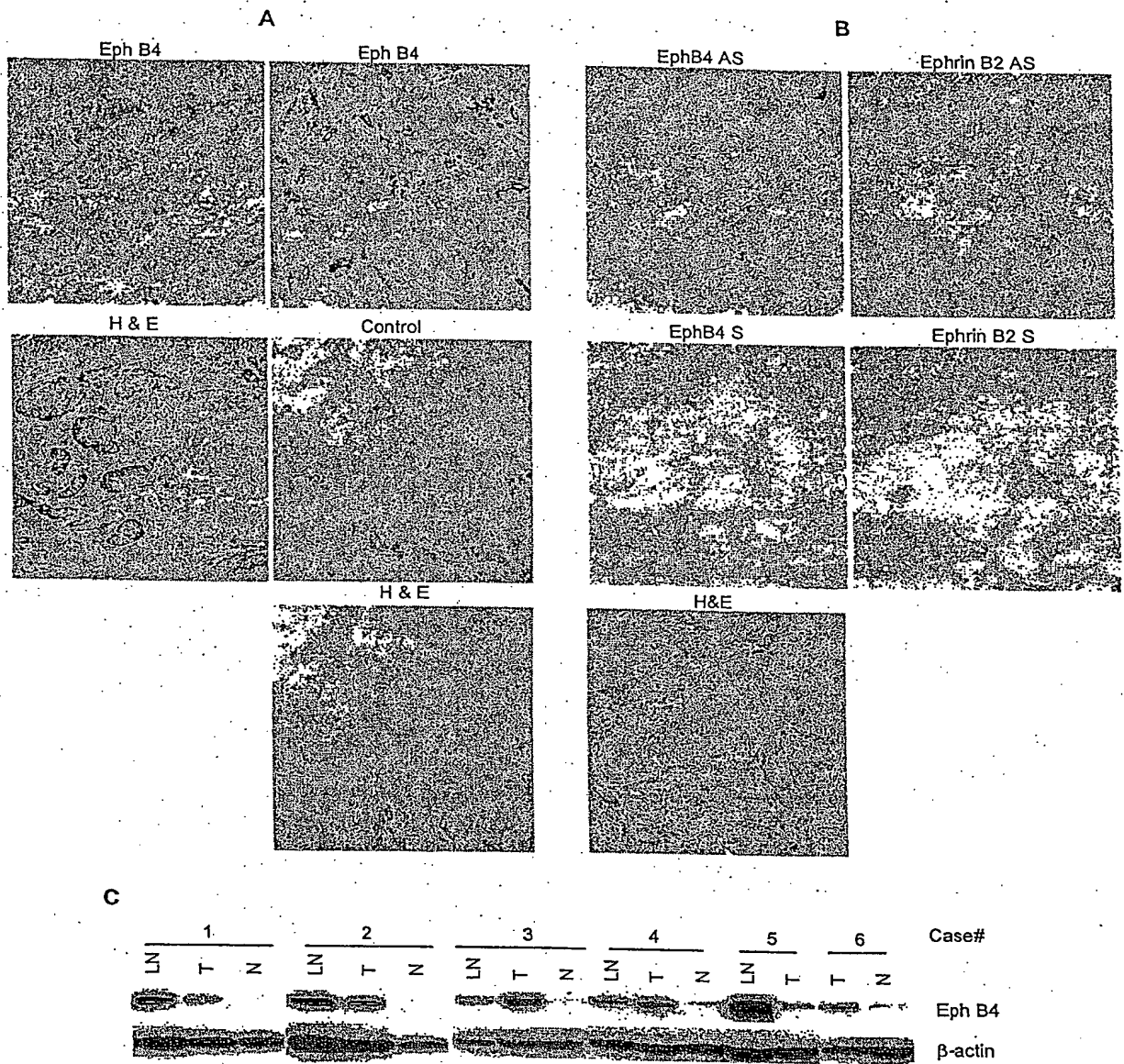


Fig. 39

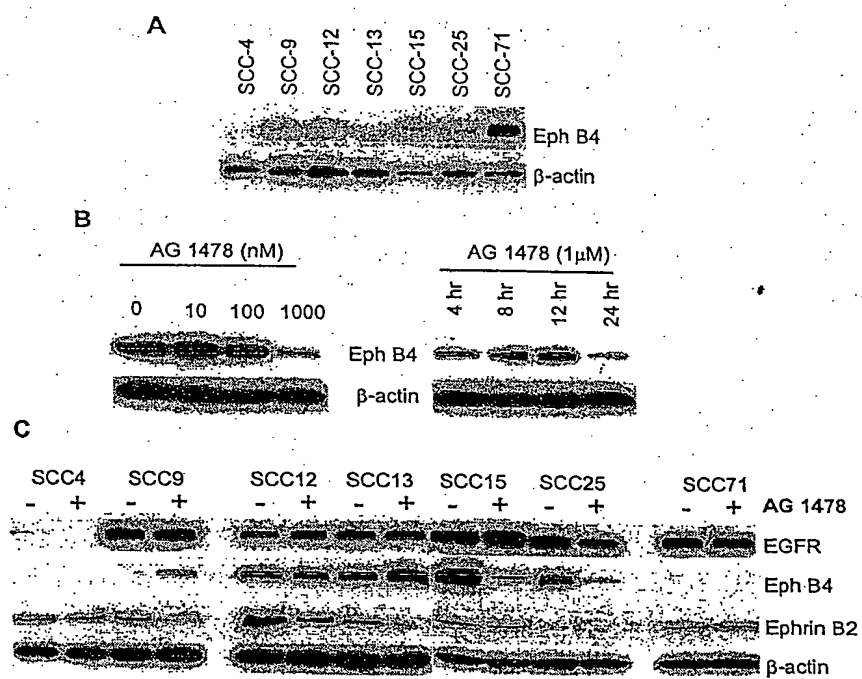


Fig. 40

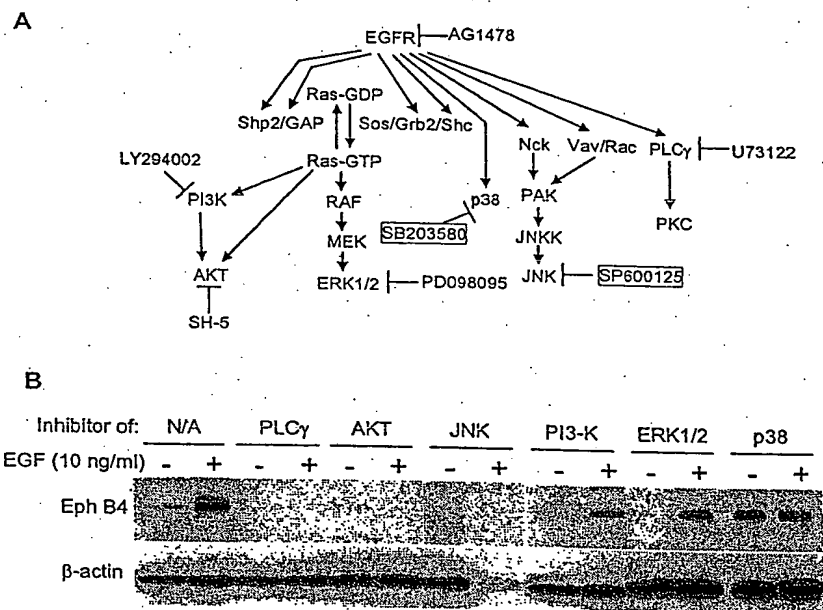


Fig. 41

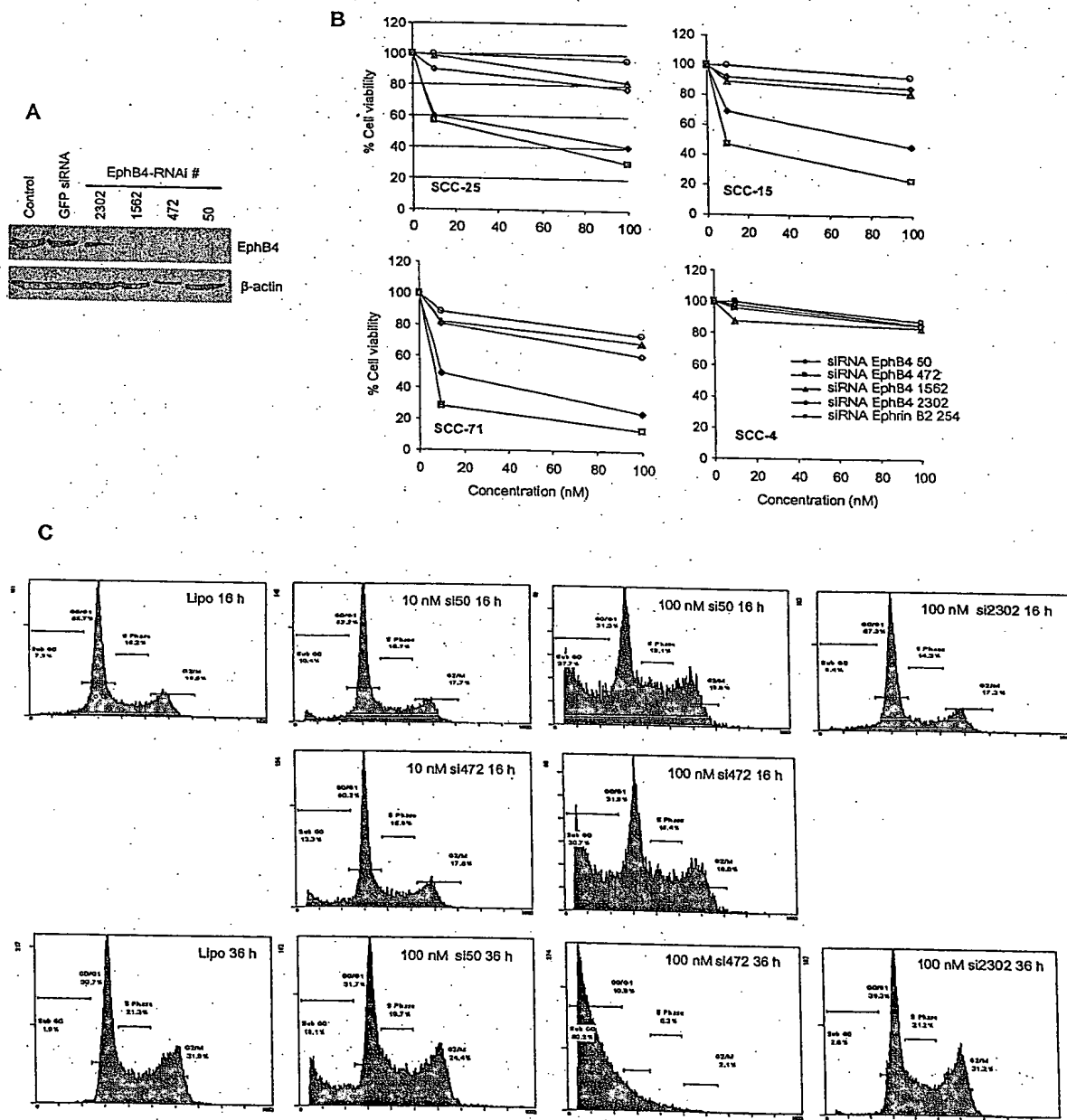


Fig. 42



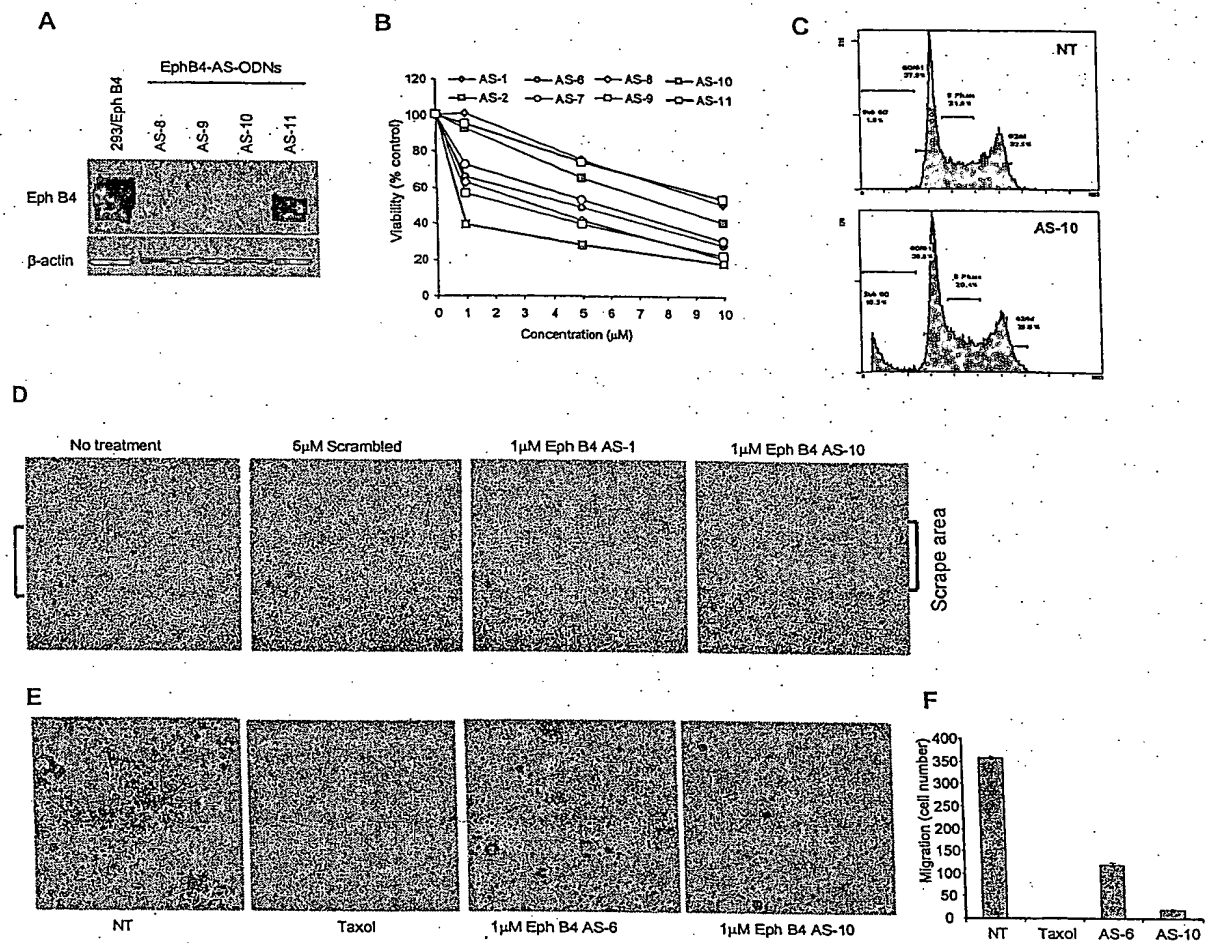


Fig. 43

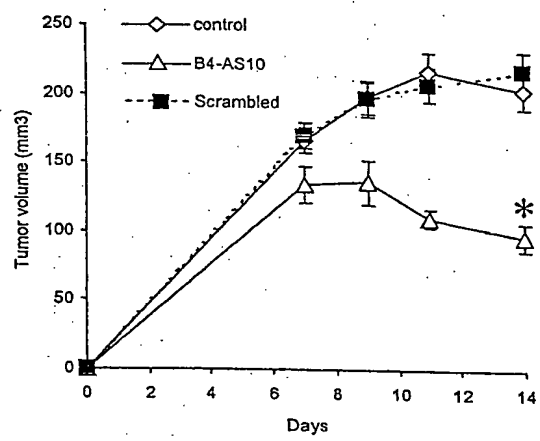


Fig. 44

Fig. 45

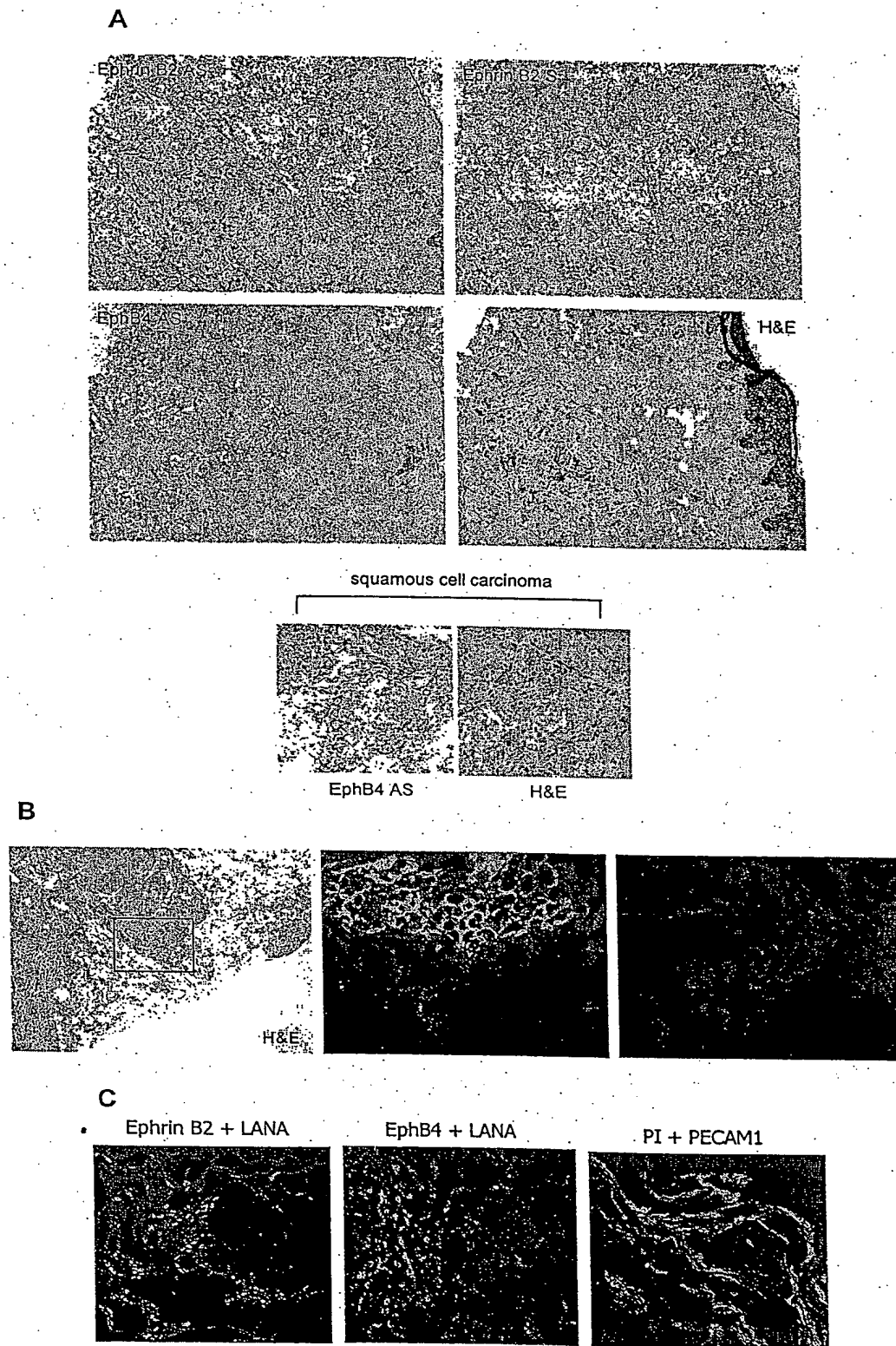


Fig. 46

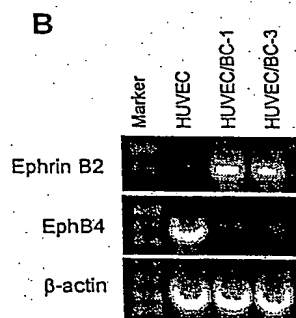
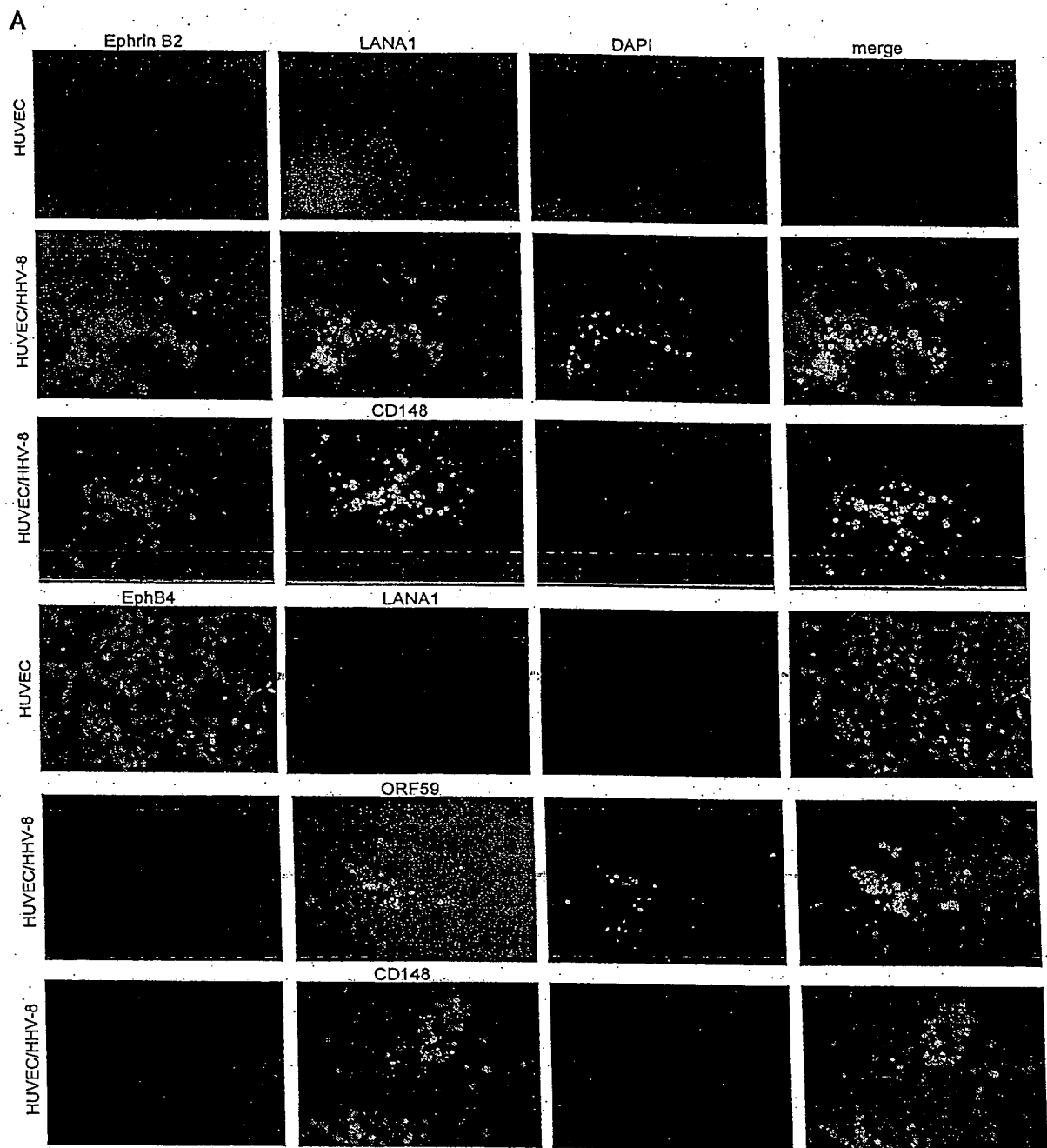


Fig. 47

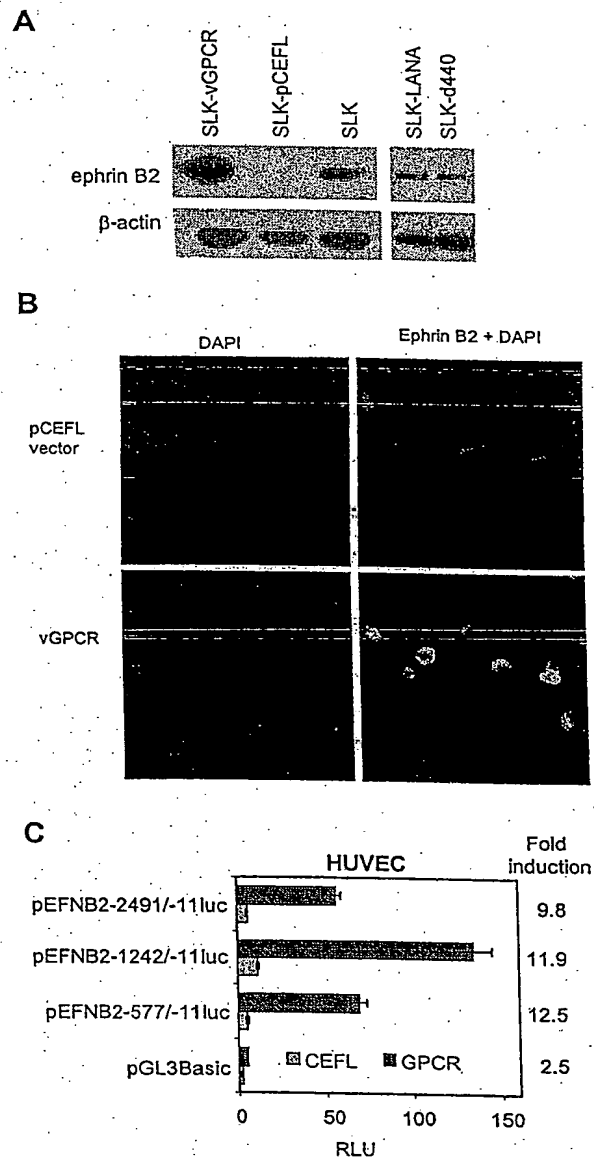


Fig. 48

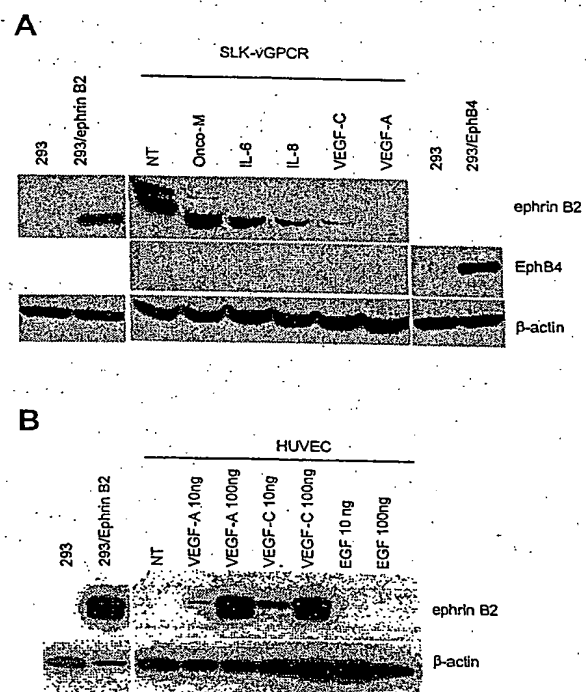


Fig. 49

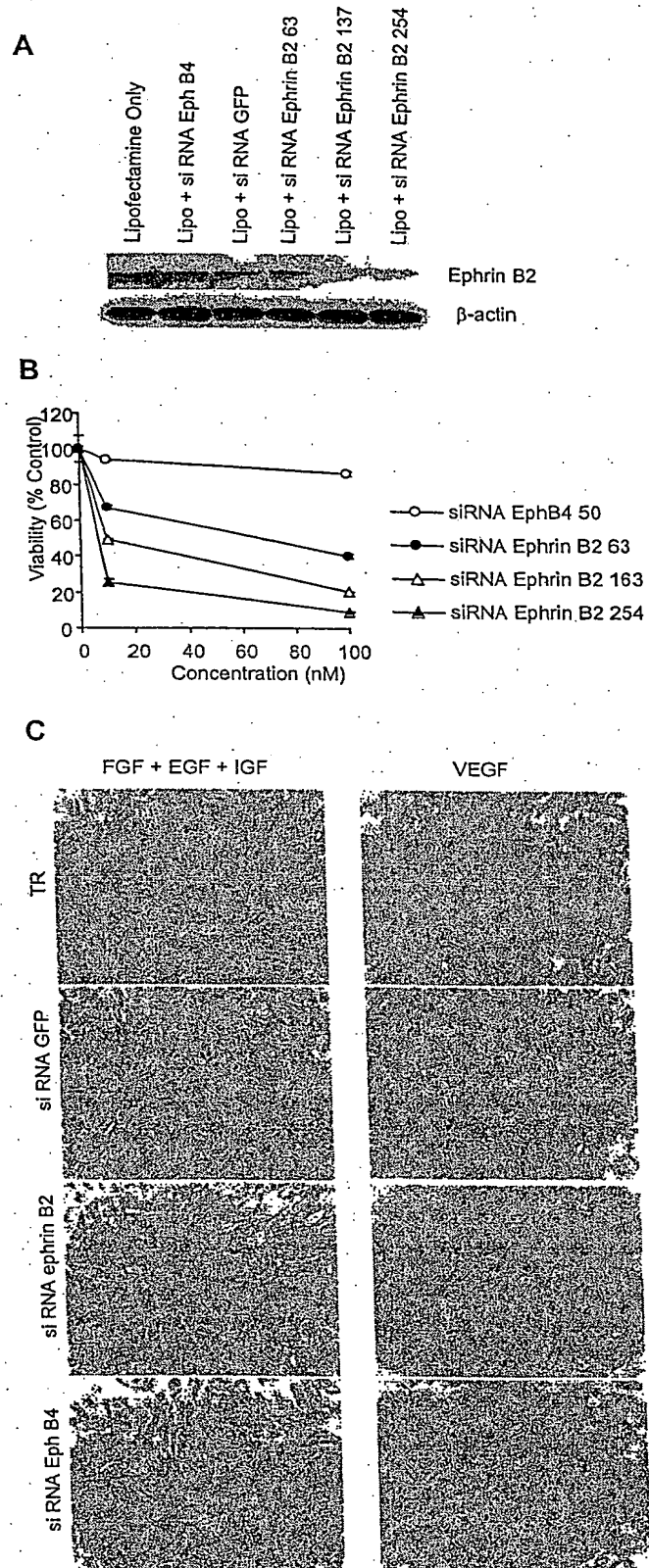


Fig. 50

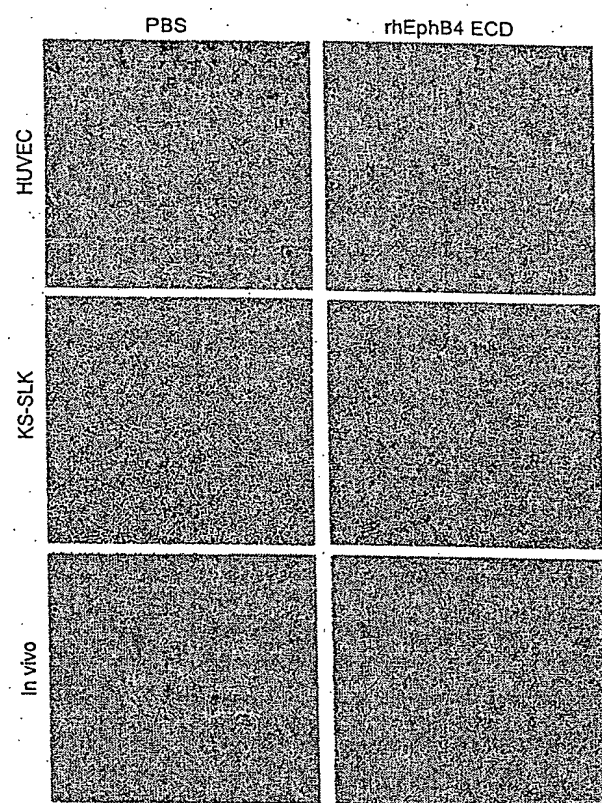
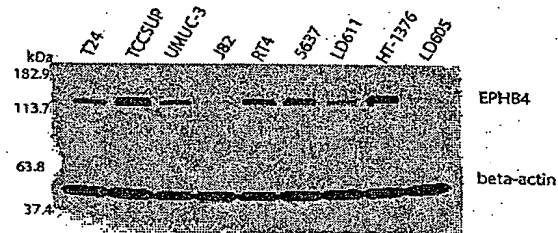




Fig. 51

### Expression of EPHB4 in bladder cancer cell lines



### Regulation of EPHB4 expression by EGFR signaling pathway



Fig. 52

Transfection of p53 inhibit the expression of EPHB4 in 5637 cell

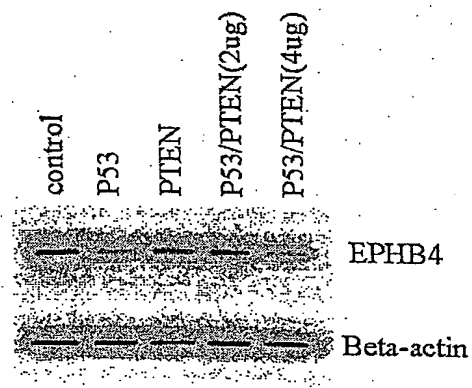
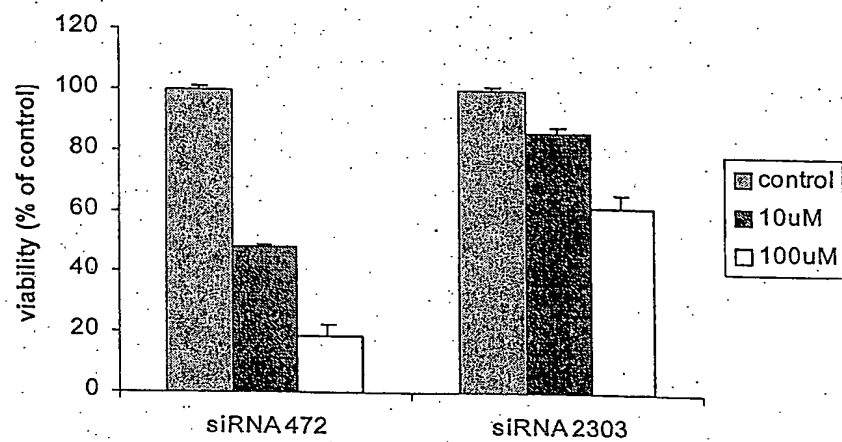


Fig. 53

Growth inhibition of bladder cancer cell line(5637) upon treatment with EPHB4 siRNA 472



# Apoptosis Study of 5637 cells transfected with EPHB4 siRNA 472

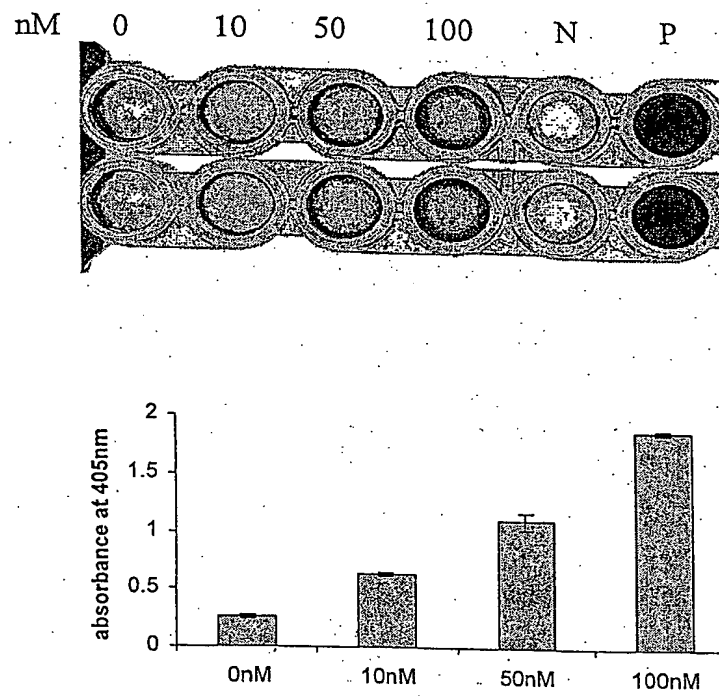
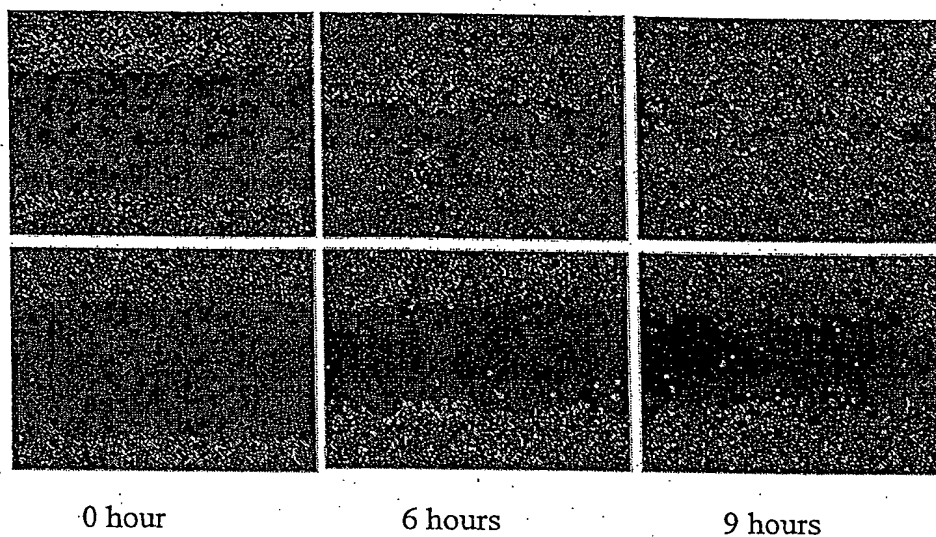


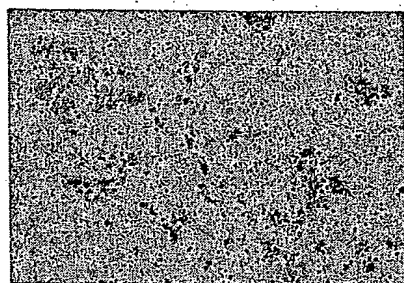
Fig. 54

**Cell migration study of 5637 cell upon treatment with AS10(10uM)**

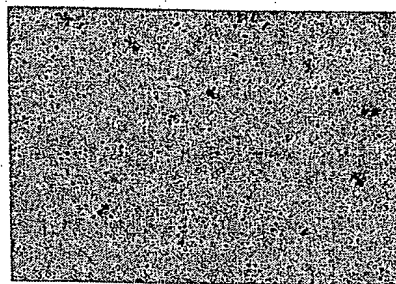


**Fig. 55**

Invasion study of 5637 cell transfected with siRNA 472 or control siRNA



Control



siRNA472

Co  
ntr  
ol

si  
R  
N  
A4  
72

Fig. 56

Fig. 57

# Comparison of moABs by G250 and in Pull Down Assay

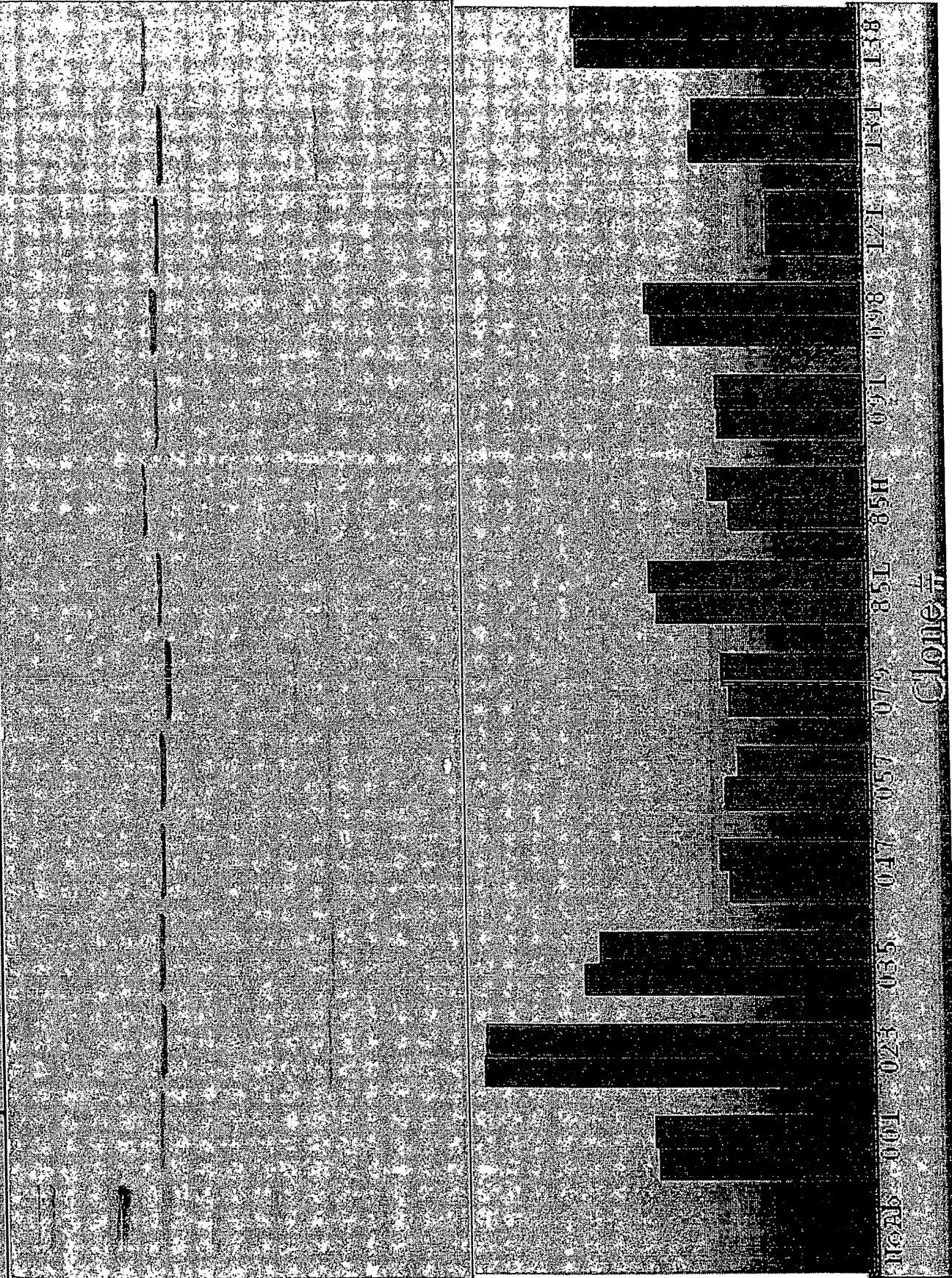


Fig. 58

## SCC15/MG xenograft Tumor regression

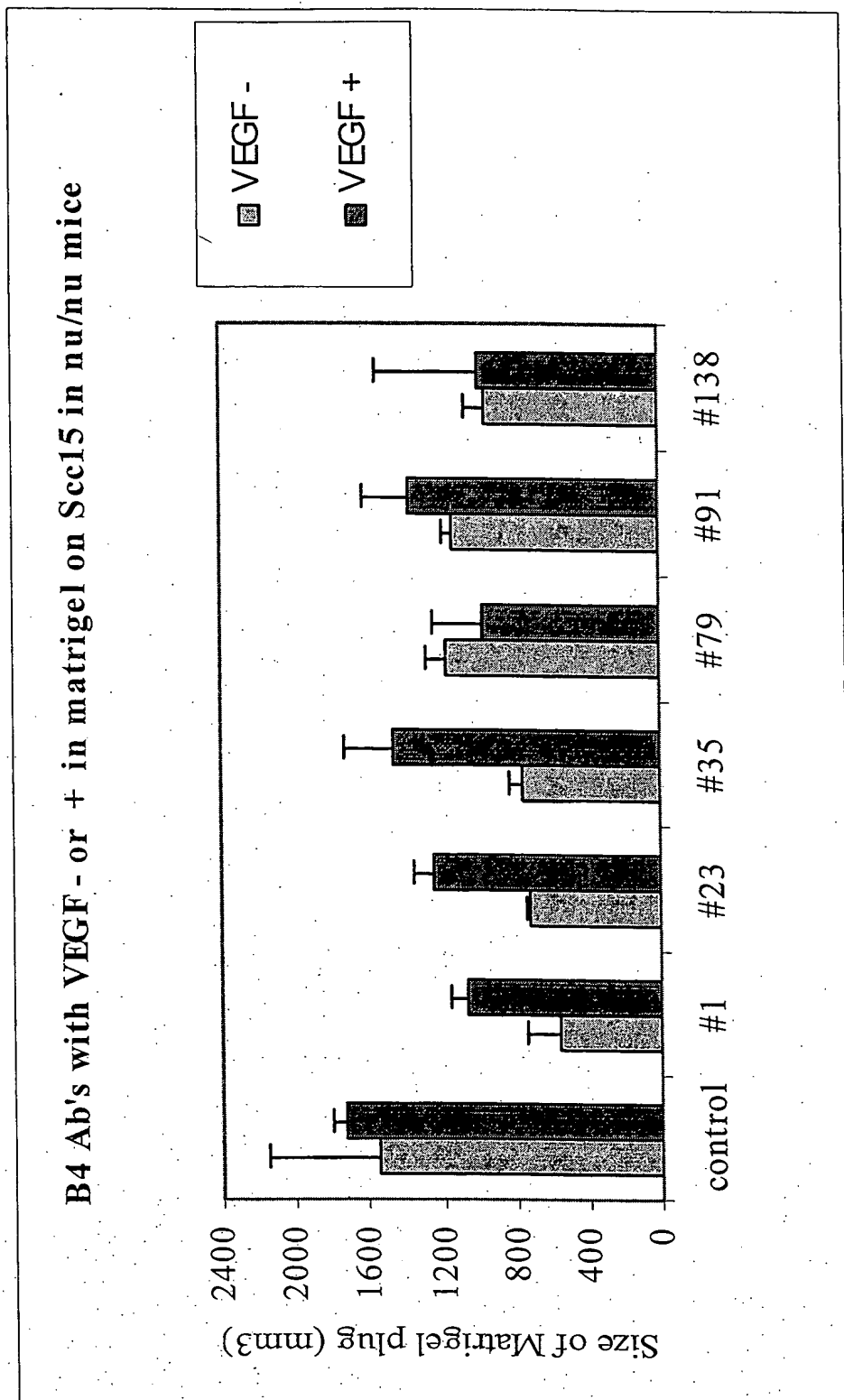
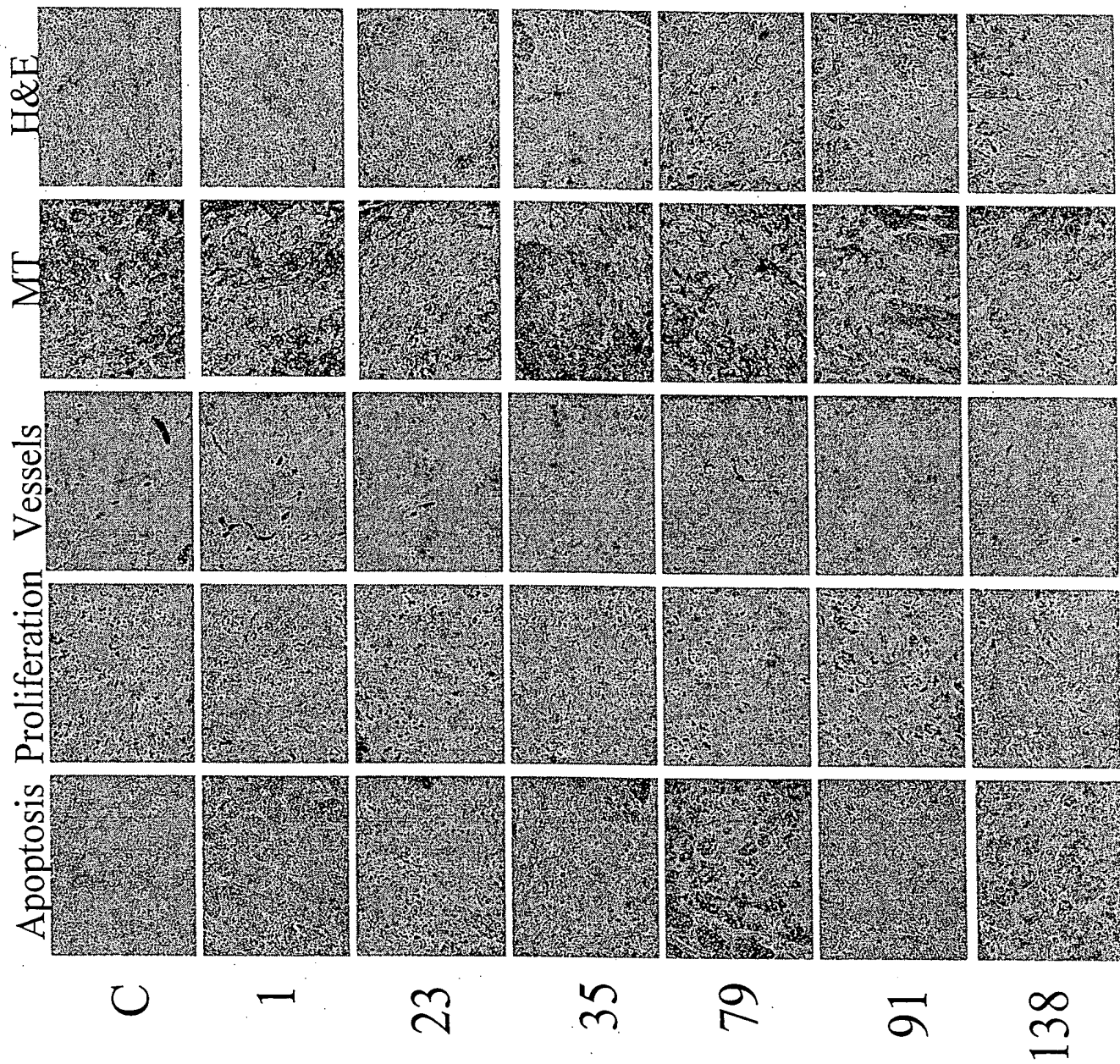




Fig. 59

# Effect of B4 antibodies on SCC15 Tumor histology



# SCC15/IP,SC B4 Ab treated xenograft Tumor regression

Fig. 60

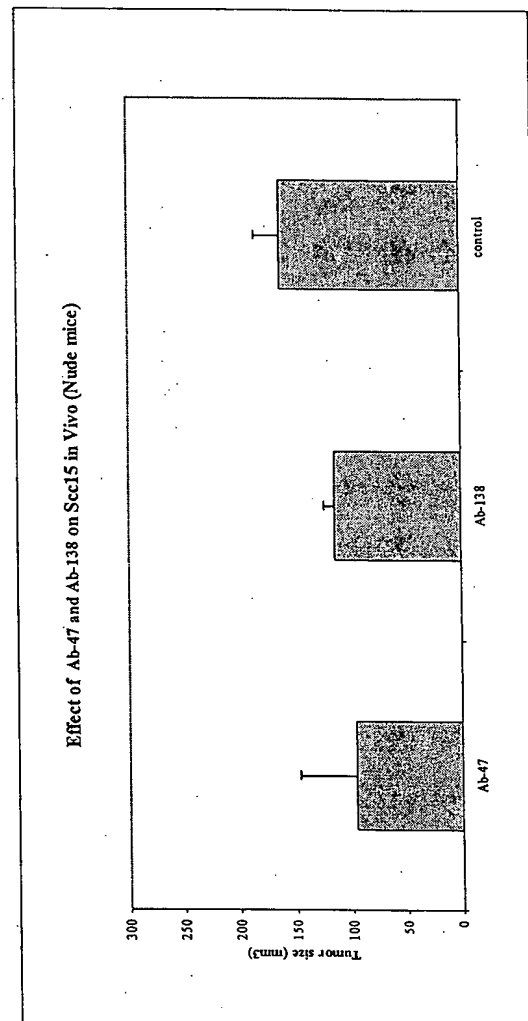
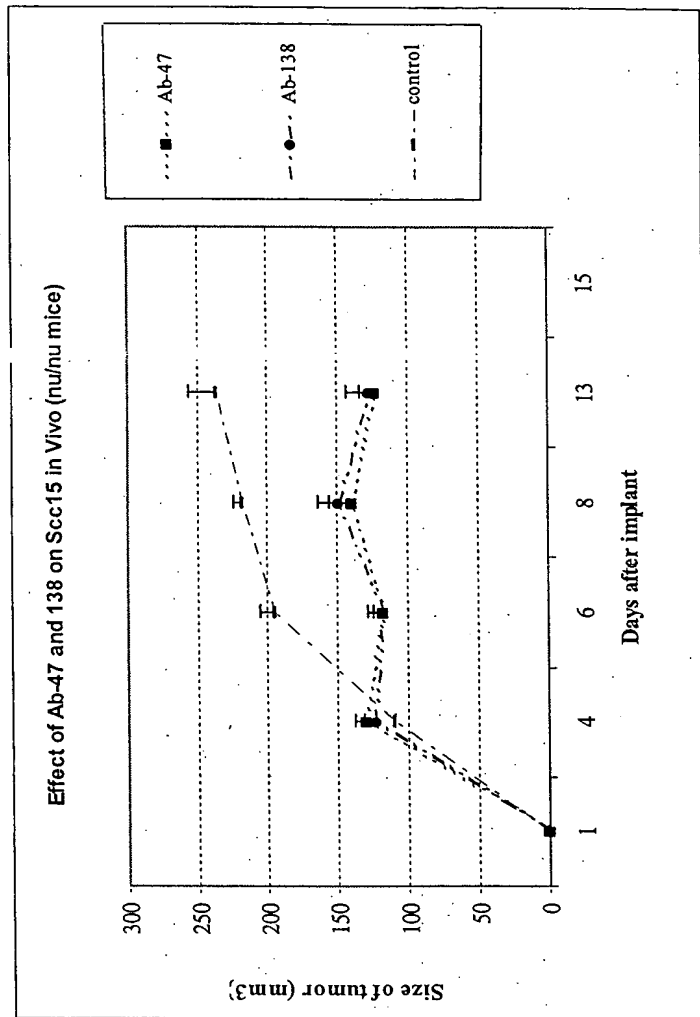


FIGURE 61 EphB4 gene

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Fig. 61(b)

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Fig. 61(c)

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8701 tacgtcctga cttcacctat acctttgag tcactgcatt gaacggggtg tctccttag
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8821 ggggggtggg gcggtggtg gtctggcggg agagatgtca ctgagggcct gaaggggaga
8881 ggcagggggt gtgaagtgg gtaccccgga agtgtgaggg gctaaggctt tgggggcaag
8941 aggcagaaag agggcaatgg ctgggcgcag tggctcacgc ctgtaatccc agcactttca
9001 gaggttgaga caggcggatc acttgagccc tggagttaa gaccagcctg ggtaacatag
9061 gaagatctct ctacaaaaaa taaaaatat agccaggcga ggtggtgcat gcctgtggtc
9121 ccagctactc aagaggctga ggcaggagga ttgcttgagc ccaggagtgc gaggtgcag
9181 tgagctatga tcgcaccgt gcatgccagc ctgggtgaca gagcagtgtg agatcctctc
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9361 agccaggggg aaattgagac aagtgtagcc agcagaggaa gtgttggaag agataaggga
9421 catggccagg ctgatcacia ggtcaggagt tcaagactag cctggccaac gtggtgaaac
9481 cccatgtcta ctaaaaataa aaaaattagc caggcatggt ggtgggcacc tgtaatccac
9541 ttgggaagca accagaagaa ttgcttgaac ccaggaggcg gaggttgag taagctgaga
9601 ctgcgccact gcactccagc gtgggtgata gagcacgact ccgtctcgaa aaaaaaatt
9661 ttttttaagt taaggacag agctaccatg cacaagggtt cctgtgtct ctgcctctca
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10021 aaaatagtta ctgtaatagt taccagcagc tggacacagt ggctgaggtt ggggtgcgggtg
10081 gctcacgcct gtaataccaa gcactttggg aggtcgaggc gggcagaatg cttgagccta

```

Fig. 61(d)

10141	ggagttttgag	accagcctgg	gcaacatggt	gaaacttcat	ctctataaaa	aacttaaaat
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10261	atcacaaagg	caggagtatc	gagaccatcc	tggctaacac	ggtgaaaccc	catctctact
10321	aaaaatacaa	aaaattagcc	aggcgcgggt	gcaggcgcct	gtagtcccag	ctactcggga
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10441	gccactggcag	tccggcctgg	gcgaaagaac	aagactctgt	ctccaaaaaa	aaaaaaaaa
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10561	ctgtaatccc	ggcacttttg	gaggccgagg	tgggtagaac	acctggggtg	aagagttcga
10621	gaccagcctg	gccaacaagg	tgaaatcccc	gtctctacta	caaatagcaa	aatcagctga
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10741	gaacccaagt	gattctcgac	ttgaggtcga	ggctgcagt	agtcgtgttt	gcaccattgc
10801	attccagcct	gagaaagtga	gaccttgtct	taaaaaaaag	gaatgatatt	atgaatacag
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10921	atgggagtg	agggcgagg	aaggagcag	gaagagcaac	aggaacttgg	gttcccgggt
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11041	ctgaagacgt	cagaaaaccg	ggcagagctg	cgggggctga	agcgggggagc	cagctacctg
11101	gtgcaggtag	gggcgcgctc	tgaggccggc	tacgggccct	tcggccagga	acatcacagc
11161	cagacccaac	tggatggtga	gcctggggaa	gggggtgagg	gtgggggttg	gaaagacccc
11221	caaagtccct	gggaagaccc	caggtctcca	aagtcacctc	atcttttttt	tttttttttt
11281	tttttgagat	ggagtcttgc	tctgtccctc	aggctggagt	gcagtggcac	catctccgct
11341	cactgcgaacc	tccgcctccc	ggattcaagc	catctcctcg	cctcagcctc	ccgagttagt
11401	gggattacag	gcgcctgcca	ccgcgcctgg	ccgatttttt	gtatttttag	tagagacggg
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11521	cctcccgagg	tgtctgggatt	acaggcatga	gccactgcac	ccggtcaaa	tcctatcttc
11581	atgtccctct	tctgtgggat	cacatggcat	gccctagaga	ggagagaacg	taagatgtcg
11641	aaaccaaacc	caacagctga	gttttgtgaa	gtctggcctg	cttcaactct	taccccagg
11701	ctggagcgca	gttgcctgat	caaagctcac	tgcacagcca	ggcacagtgg	ctcaccctgt
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11821	agtctgacca	gcctgggtgaa	accgcgtctc	tactaaaaat	atagaagtta	gctgagcgtg
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11941	tgggaggtgg	aggttgcagt	gagctgagat	tgtgccagt	cactccagcc	tgggcaacag
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12061	tgacccctga	gtcccccatt	ccccatccaa	caaaatggga	atatcatgaa	gcttcctgca
12121	gggcttttgag	gattggagg	aacagggttat	ttttaatatg	ctaggccagt	ggctttcttt
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12421	ggcaccatca	tagctcattg	cagcctacaa	ctcccagact	caaccaatcc	ttccacctta
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12541	tgttttgttg	agacagtttc	cctatgttgc	ccaggctgg	ctcaaatcc	tgacctcgag
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12661	gcattggacc	agtggctttc	taaaccttgt	aattttctgt	aatagcttta	ctgaaataca
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12961	cgagcagaat	gttttcaagg	tttatgtatg	ttgtagtata	tatccgtggg	tttttttgg
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13081	gcattggctc	aattacagct	cactgcagcc	tcaacctccc	aggctcaagt	gatcctccca
13141	cctcagctcc	ccaagcagct	gggactgtag	gcagtagcca	ccatgcccag	ctaatttttt
13201	ttgggtatttt	ttgtaaagac	agggtttcac	catgtttccc	aggtgggtct	cgaactcctg
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13441	ctcctacctc	agcctcctga	gtatctggga	ccacacgtgc	tcaccaccat	gcttggctaa
13501	ttattattat	tttttgatag	agacggggtc	ttgctatgtt	tcccaggctg	gtcttgaaca

Fig. 61(e)

13561	cctggcctca	cacaatcctc	ccacctcagt	atctcagagt	gctgggatta	caggcatgag
13621	ccactgctcc	tggccaatat	ttcattttctt	tttatggaga	cgtaataatc	agttgtatgg
13681	aaatagctga	ttttgttttt	tattgtatct	tttggatgaac	atttcaattg	tatcgacttt
13741	ttggataaaa	acctgaaaat	gtttcacctt	tagaacgttt	cattgaatgg	agattttttt
13801	gtggactctg	gtatttatac	tagaaccaaa	tcaaaaccac	tctggcggct	gggcatgcct
13861	aggctggttt	gagactagcc	tgtccaacct	ggtgaaagcc	catctctact	aaaaatacac
13921	aaattagccg	agcatggtgg	tacacacctg	taatcccagc	tactcaggag	gctgaggcag
13981	gagaatcgca	gaacccggga	ggcggagatt	gcagtgagct	gagattgcgc	cactgcactc
14041	cagcctgggc	gacagagtga	gactgcgtct	caaaaaaaca	aacaaaaaat	tactctggca
14101	gtaagaaaag	atttcgaaac	ttcctccctt	gccctgaggt	acttcagagg	agcctgctgg
14161	cccctggggg	agagtttgaa	acccactggt	tgttccctga	ccttgccctgc	ttgtgtcctc
14221	tccttccacc	tgtccctgt	actggggacc	tgttctcagg	agatcacagt	tcattgctca
14281	acccggggg	tggggcctcc	tacaggacca	tcagtttctc	ctgatcagca	gcctttcctt
14341	ccgcagagag	cgagggtgg	cgggagcagc	tggccctgat	tgcgggcacg	gcagtcgtgg
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14461	gacaccaga	ggccctgga	agcctcagt	tgatggccac	ctgcctgggt	gctacaggac
14521	aagcctttct	ggctgtcccc	agcctctttt	tacttgaat	cttctccaat	ccctgctcct
14581	tcctttggtg	tgtgtgcctc	ataaagatgt	gtgactcagt	ttaccttttg	ttcctttccc
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14701	tatctcatcg	gacatggtgg	gttgccctaa	tttgatggga	ataggggctt	ggggccgggt
14761	gtggtggctc	ctatctataa	tccagcact	tgggaggca	gaggtgggca	gatcacttga
14821	ggtcaggagt	tcgagaccag	cctggccaac	atggtgaaac	tccatctcta	taaaaataac
14881	atcagtcagc	caggcatggt	ggtgggcacc	tgtaatccca	gctactcagg	aggctgaggc
14941	agaagaatca	ttttaaccgc	ggaggcggag	attgcagtga	gccaagatcg	cgccactgcg
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15061	accacggaga	caggggtttg	gggctaaaag	ctatgagccg	agcctccgag	tccagtggga
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15721	acctcctcca	gccttttctt	cttgggctaa	gccctgggtc	tctgcctttt	ctttttttta
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16141	gttgctattc	cttctttttt	tttttaattt	tgttttaatt	gaattttttt	tttttgagat
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16501	gacagagtct	cactctgtcc	tctaggctgg	agtgcaagtg	tgcatctata	gctcactgta
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16741	acagcactgg	gattgcaggc	atgagccact	gtgcctggcc	tgtcattcct	tcttttgaca
16801	aatatttact	gagtgccttc	tacgcaccgg	tcatcctccc	agtccccagg	aataaagcta
16861	tacacacggc	aaactggatt	tctcctcttg	gggagcagag	ggtctaattg	ggcaggggga
16921	ctgaaaaatta	gcaagtaaat	agacaggctt	tttaaaaaag	taaacaaatc	atttcaaatg



Fig. 61(f)

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16981 tgaaaaaaag caaacgggggt ccttcatgca gatgtggcta gagaggaaag agaactgctt
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17101 gcttttcttt tttcttgaga tggagtttcc atctgtcacc caggctggag tgcagtgggtg
17161 cgttcttggc tcaccgcaac gtccacctcc tgggttcaag tgattctcct gctcagcct
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17281 agtagagaca ggggtttcatc atgttgccca ggctgggtctt gaactcctgg gctcaagtga
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17821 ctggtctcaa actcctggac tcaagcgatc ctccctcctt aacctctcaa agtgctggga
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20281 attgtaagca atgtgttgtg atactgtagc aagagctgag aaaacttggg aaaagagaaa
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Fig. 61(g)

20401	tctggaagtg	acagatgcag	tttaggaagt	ggacgggagg	ctgggtacgg	tgactcaaca
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20521	agaccagcct	gggcaacata	gtgggaacct	atctctacta	aaaattaaaa	aattatccag
20581	gcataatggc	acatgcctat	tgttccagct	actcaggagg	cttgccctgag	cccaggagggt
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20701	cctgtctcta	aaaaaaaaag	atgtggatgg	gaggggggaac	ggtgggtggg	ctgtcctcac
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20821	gtgggcatgc	tgcggggcat	cgctcgggc	atgcggtacc	ttgccgagat	gagctacgtc
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20941	gactttggcc	tttcccgatt	cctggaggag	aactcttccg	atcccaccta	cacgagctcc
21001	ctggtaatgc	tgggggtaat	actgggtgtg	agcttcttag	ggccagggtg	gcagggcagg
21061	tggaaagggt	gggaggctga	gggtttggca	gccctgctcc	agggagagga	tacaggagca
21121	ggctgtgggt	ggggggacag	tcagctccag	gaagccgact	tccagatgtc	taggaaaata
21181	acagttggat	aacctgggca	acatagcaag	accccatctc	tacaaaaaaa	ttaaaagatt
21241	agccaggcgc	agtggcatgc	acctgtagtc	ccagctactt	gggagggtga	ggcaggagga
21301	ttgcttaagc	ccaggagtgt	gaggctgcag	tgagctatga	atgtgccact	gtactgcaga
21361	ctgggcgaca	gagcaagacc	ctgtctcaaa	agaacagtgg	ccagggtgtg	tggctcacgc
21421	ctgtaaatcc	agcacttttg	gaggctgagg	caggaggatc	gcctgagggt	aggagttcga
21481	gaccagcctg	gccaacatgg	gaaaacctgc	tcgctactaa	aaatacaaaa	ttagctgagg
21541	gtggtgtggg	acgcctgtaa	tccagctac	tcaggaggct	gaggtaggag	aaccagttga
21601	acccgggagg	cggagtttca	gtgagccaag	atcgaccac	tgcactccaa	cctgggcaaa
21661	cagagttgga	gagtaggagg	cctggggcct	gagctagggg	gaaaaagcag	aggcaggtgg
21721	gggactgggg	ggcagtgtgc	tgggtctggg	gagtccctca	gtgagtcgcc	cagctcacct
21781	tttctccttt	ttctgcaggg	aggaaagatt	cccatccgat	ggactgcccc	ggaggccatt
21841	gccttccgga	agttcacttc	cgccagtgat	gcctggagtt	acgggattgt	gatgtgggag
21901	gtgatgtcat	ttggggagag	gccgtactgg	gacatgagca	atcaggacgt	aagtgtcccg
21961	tggctcctac	aagctttcct	cgagtgttct	ctcacctggg	atttgggggtg	aagggtgggt
22021	tcccagagag	tcctcactgc	tgggttcttg	agaccatgga	gatgacaaaa	aggagaattg
22081	atctttgtat	caaagagttg	agatacaggg	ccaggcctag	tggctcaagc	ctgtaatccc
22141	agcacttttg	gaggccaagg	tgggcagatc	acctaaaggt	aggagttcaa	gaccagcctg
22201	gccaacatgg	tgaacccccg	tctctaaaaa	aatacaaaaa	attagcccag	catgatgggc
22261	gggtgcctgt	aatcccagct	actcaggagg	ctgagacagg	ataatcgctt	gaacccagga
22321	acagaggttg	cagtgcagctg	agatcacgcc	attgctttcc	agcctgggca	actgagcgag
22381	actctgtctt	aataaataaa	taaaagagtt	gggtacagca	tatttgggtc	gcagaaggat
22441	gcagagatgg	agggcagggt	tgagaggtaa	catgtctgta	tcatagccca	agagctgctg
22501	gggccttcag	ccacagagag	cttcaactcc	ggctaggagg	attcctggat	ctgttatttt
22561	ttggggggct	gtggctccta	tcctaccatc	ttccaagtca	ccatttccctg	ggcctgttag
22621	catctttgct	tttctgggac	agcctcacc	agagcttctt	ccccctctt	cagggtgatca
22681	atgccattga	acaggactac	cggctgcccc	cgcccccaga	ctgtcccacc	tcctccacc
22741	agctcatgct	ggactggttg	cagaaagacc	ggaatgccc	gccccgctt	ccccagggtg
22801	tcagcgccct	ggacaagatg	atccggaacc	ccgccagcct	caaaatcggt	gcccgggaga
22861	atggcggggtg	aggactgcag	agaatgggcc	ctccttccc	ctctctgccc	ccactccttg
22921	cccagaagtg	tccgttcatt	ggtgttgggt	gggagggcct	ctgtccgcct	ctgcaaggct
22981	gggttccacc	tcctcccccg	gacctggg	tggtactcag	cattcctccc	catccttgcc
23041	ccctagggcc	tcacaccctc	tcctggacca	gcggcagcct	cactactcag	cttttggtct
23101	tgtgggcgag	tggcttcggg	ccatcaaaat	gggaagatac	gaagaaagtt	tcgcagccgc
23161	tggctttggc	tccttcgagc	tggtcagcca	gatctctgct	gagtaagcag	tggcaggagc
23221	tggagtgggg	ctgggagagc	ggggcagctg	gagtcaggcc	cacggggtct	ccaggggctt
23281	ttgggggtcag	cttcgggtgc	caatgctgtc	ttcttgact	gcgctcatgc	catgcttaga
23341	agggccccag	aggagcagtc	acagccccat	ggagctgagg	acccaaggac	tctttggggc
23401	cagcctgccc	gcctcacctc	ctcctgccat	cacagccctg	ggccatcgcg	cttccgctc
23461	tcacttctag	ctatctttgt	gcactctatc	gcattccagg	cccggctctc	acggtaacaa
23521	tgtgtcaact	cgggttctct	ttttccaacc	ataaaaggag	aagattgggc	taggttttgg
23581	agatcctctt	cagcttttat	gtgaaatgg	tttatgattc	cttgccctcc	aaaggctgcg
23641	tatccccact	tggcctttgt	ctgctactcc	ccctttctgc	cttcccgctt	ctctcccaag
23701	atctcctctc	accccagggt	gaataacaga	aatagaagga	atagaaatct	gaaggccggg
23761	catggtggct	catgcctgta	atgccagcac	tttgggaggc	cgagggtggc	agatcacttg

Fig. 61(h)

```

23821 aggttaggag ttcgagacca ttgtggacaa cttggtgaaa ccttatgtct actaaaaata
23881 caaaaattag ctgggcatgg tgggtgcgtgc ctgtaatacc agctactgag gaggctgagg
23941 caggagaatc gcttgaaccc gggaggtgga ggttgcaagt agccgagatc gcaccactgc
24001 actccagcct ggatgacaga gtgaaattcc atctcaaaaa aaaaaaaaaa aaaaaaaaaaag
24061 aaatgtgaag gccaggtggt ggctcacgcc tghtaatctca gcactttggg aggctcagggt
24121 ggaccgattg cttgagccca ggagtttgag agcagcctgg ccaaaatagc aaaaccccat
24181 ctctacaaaa caaaaacaaa aaaattagct gggcatggtg gtgctgtcct gtggtcccag
24241 ctactcagga ggctagagcc agaggtgtctc aggccagtct gcccctgccc cacggggcct
24301 gggcacatcc ctccctaatt cttcccagcc tctctctgac ccaggggggc tctctccct
24361 tttttccctc tatctcagcc tccagccatc agcaacctcc tcttccctcc caccagctc
24421 ttcctctccc acttcggcct tttctttctc acactccatt tccctctacg gcaatctgtg
24481 cagcctcttc ccccagcttc attttgcggg cttttctctc ttttctttcc ttccctggca
24541 cccaagccaa aggccctgcc ttggcctcc agccctaccc ccttctgctg ttgcacagaa
24601 ggatggctgc ccagctctta aaaaaactgc ccgggaactg ttgacatctg ttctccctcc
24661 cccgctggct tttctgattg gcttacaatc ctgaggctag gaccgtctca ggagccaaga
24721 gaggagagcg gccacaggga acctagggtc tcaccaagct ctcccttccct tctgcaggga
24781 cctgctccga atcggagtca ctctggcggg acaccagaag aaaatcttgg ccagtgtcca
24841 gcacatgaag tcccaggcca agccgggaac cccgggtggg acaggaggac cggccccgca
24901 gtactgacct gcaggaactc cccaccccag ggacaccgcc tccccatttt ccggggcaga
24961 gtggggactc acagaggccc ccagccctgt gcccgcctgg attgcacttt gagcccgctg
25021 ggtgaggagt tggcaatttg gagagacagg atttgggggt tctgccataa taggagggga
25081 aaatcacccc ccagccacct cgggggaactc cagaccaagg gtgaggcgcc ctttccctca
25141 ggactgggtg tgaccagagg aaaaggaagt gcccacatc tcccagctc cccagggtgc
25201 cccctcacct tgatgggtgc gttcccgcag accaaagaga gtgtgactcc cttgccagct
25261 ccagagtggg ggggctgtcc cagggggcaa gaaggggtgt cagggcccag tgacaaaatc
25321 attgggggtt gtagtcccaa cttgctgctg tcaccaccaa actcaatcat tttttccct
25381 tgtaaatgcc cttccccag ctgctgcctt catattgaag gtttttgagt tttgtttttg
25441 gtcttaattt ttctccccgt tccctttttg tttcttcgtt ttgtttttct accgtcctg
25501 tcataacttt gtgttgagg gaacctgttt cactatggcc tccttgccc aagttgaaac
25561 aggggcccac catcatgtct gtttcagaa cagtgccttg gtcacccac atccccggac
25621 cccgcctggg accccaagc tgtgtcctat gaaggggtgt ggggtgaggt agtgaaaagg
25681 gcggtagtgt gtggtggaac ccagaaacgg acgccggtgc ttggaggggt tcttaatta
25741 tatttaaaaa agtaactttt tgtataaata aaagaaaatg ggacgtgtcc cagctccagg
25801 ggtgatggg gtgatggact agatttctaa ggagagtggg gctgggtagg gagggctttg
25861 tggctgaccg agaggtgtca gaggtctgga ggctgcagg ctgtaggggc tggaaacttg
25921 ttatcagccc cagggtatgt ttgaggtggt ggggtggggg ccgagcgaga tgaatcattc
25981 gcagctgctt ctaacgtctc

```

FIGURE 62. EphB4, mRNA.

```

1  ctccggcccg  cggcgcgagc  agagccactc  cagggagggg  gggagaccgc  gagcggcccg
61  ctcagccccc  gccacccggg  gcgggacccc  gaggcccccg  agggacccca  actccagcca
121  cgtcttctgt  cgcgccccgc  cggcgcgggc  actgccagca  cgctccgggc  ccgcccggcg
181  cgcgcgcggc  acagacgcgg  ggccacactt  ggcgcgcggc  cccgggtgcc  cgcacgctcg
241  catgggcccc  cgctgagggc  cccgacgagg  agtcccgcgc  ggagtatcgg  cgtccacccg
301  cccagggaga  gtcagacctg  ggggggcgag  ggcccccaa  actcagttcg  gatcctaccc
361  gagtgaggcg  gcgccatgga  gctccgggtg  ctgctctgct  gggcttcgtt  ggccgcagct
421  ttggaagaga  ccctgctgaa  cacaaaattg  gaaactgctg  atctgaagtg  ggtgacattc
481  cctcaggttg  acgggcagtg  ggaggaactg  agcggccttg  atgaggaaca  gcacagcgtg
541  cgcacctacg  aagtgtgtga  cgtgcagcgt  gccccgggcc  agggccactg  gcttcgcaca
601  ggttgggtcc  cacggcgggg  cgcggtccac  gtgtacgcca  cgctgcgctt  caccatgctc
661  gagtgcctgt  ccctgcctcg  ggctgggcgc  tctgcaagg  agaccttcac  cgtcttctac
721  tatcaagcgc  atcgggacac  ggccacggcc  ctacgcgcag  cctggatgga  gaacccctac
781  atcaaggttg  acacgggtgg  cgcggagcat  ctacccggga  agcgcctgg  ggccgaggcc
841  accgggaagg  tgaatgtcaa  gacgctgcgt  ctgggaccgc  tcagcaaggc  tggcttctac
901  ctggccttcc  aggaccaggg  tgcttgcctg  gccctgctat  ccctgcacct  cttctacaaa
961  aagtgcgccc  agctgactgt  gaacctgact  cgattcccgg  agactgtgcc  tcgggagctg
1021  gttgtgcccc  tggccggtag  ctgctggtg  gatgcccgtc  ccgccctgg  cccagcccc
1081  agcctctact  gccgtgagga  tggccagtg  gccgaacagc  cggtcacggg  ctgcagctgt
1141  gctccggggg  tcgaggcagc  tgaggggaac  accaagtgcc  gagcctgtgc  ccagggcacc
1201  ttcaagcccc  tgtcaggaga  agggctcctg  cagccatgcc  cagccaatag  ccactctaac
1261  accattggat  cagcgtctg  ccagtgcgc  gtcgggtact  tccgggcacg  cacagacccc
1321  cggggtgcac  cctgcaccac  ccctccttcg  gctccgcgga  gcgtgggttc  ccgctgaac
1381  ggctcctccc  tgcacctgga  atggagtgcc  ccctggagt  ctggtggccg  agaggacctc
1441  acctacgccc  tccgtgcgc  ggagtgccga  cccggaggct  cctgtgcgcc  ctgcggggga
1501  gacctgactt  ttgaccccg  cccccgggac  ctggtggagc  cctgggtgg  ggttcgaggg
1561  ctacgtcctg  acttcacct  tacctttgag  gtcactgcat  tgaacgggg  atcctcctta
1621  gccacggggc  ccgtccatt  tgagcctgtc  aatgtcacca  ctgaccgaga  ggtacctcct
1681  gcagtgtctg  acatccgggt  gacgcgggtc  tcaccagca  gcttgagcct  ggcctgggct
1741  gttccccggg  caccagtggt  ggctgtgctg  gactacgagg  tcaaatacca  tgagaagggc
1801  gccgagggtc  ccagcagcgt  gcggttctct  aagacgtcag  aaaaccgggc  agagctgcgg
1861  gggctgaagc  ggggagccag  ctacctggtg  caggtacggg  cgcgctctga  ggccggctac
1921  gggcccttcg  gccaggaaca  tcacagccag  acccaactgg  atgagagcga  gggctggcgg
1981  gagcagctgg  ccctgattgc  gggcacggca  gtcgtgggtg  tggctcctgg  cctgggtggc
2041  atttggtcgt  cagttctctg  cctcaggaag  cagagcaatg  ggagagaagc  agaatactcg
2101  gacaaacacg  gacagtatct  catcggacat  ggtactaagg  tctacatcga  ccccttact
2161  tatgaagacc  ctaatgaggc  tgtgagggaa  tttgcaaaag  agatcgatgt  cctctacgtc
2221  aagattgaag  aggtgattgg  tgcaggtgag  tttggcgagg  tgtgccgggg  gcggtcaag
2281  gccccaggga  agaaggagag  ctgtgtggca  atcaagacc  tgaagggtgg  ctacacggag
2341  cggcagcggc  gtgagtttct  gagcgaggcc  tccatcatgg  gccagttcga  gcaccccaat
2401  atcatccgcc  tggagggcgt  ggtcaccaac  agcatgccc  tcatgattct  cacagagttc
2461  atggagaacg  gcgccctgga  ctcttctctg  cggctaaacg  acggacagtt  cacagtcate
2521  cagctcgtgg  gcatgctgcg  gggcatcgcc  tcgggcatgc  ggtaccttgc  cgagatgagc
2581  tacgtccacc  gagacctggc  tgctcgcaac  atcctagtca  acagcaacct  cgtctgcaaa
2641  gtgtctgact  ttggcctttc  ccgattcctg  gaggagaact  cttccgatcc  cacctacacg
2701  agctccctgg  gaggaagat  tcccatccga  tggactgcc  cggaggccat  tgccttcggg
2761  aagttcactt  ccgccagtga  tgcctggagt  tacgggattg  tgatgtggga  ggtgatgtca
2821  tttggggaga  ggccgtactg  ggacatgagc  aatcaggacg  tgatcaatgc  cattgaacag
2881  gactaccggc  tgccccgcc  cccagactgt  cccacctccc  tccaccagct  catgctggac
2941  tgttggcaga  aagaccggaa  tgcccgccc  cgcttcccc  aggtggtcag  cgccctggac
3001  aagatgatcc  ggaacccgc  cagcctcaaa  actgtggccc  gggagaatgg  ggggacctca
3061  caccctctcc  tggaccagcg  gcagcctcac  tactcagctt  ttggctctgt  gggcgagtg
3121  cttcgggcca  tcaaaatggg  aagatacgaa  gaaagtctcg  cagccgctgg  ctttggctcc
3181  ttcgagctgg  tcagccagat  ctctgctgag  gacctgctcc  gaatcggagt  cactctggcg

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Fig. 62(b)

```

3241 ggacaccaga agaaaatctt ggccagtgtc cagcacatga agtcccaggc caagccggga
3301 accccgggtg ggacaggagg accggccccc cagtactgac ctgcagggaac tccccacccc
3361 agggacaccg cctccccatt ttccggggca gagtggggac tcacagaggc cccagccct
3421 gtgccccgt ggattgcact ttgagcccggt ggggtgagga gttggcaatt tggagagaca
3481 ggatttgggg gttctgccat aataggaggg gaaaatcacc cccagccac ctcggggaac
3541 tccagaccaa gggtgagggc gcctttccct caggactggg tgtgaccaga ggaaaaggaa
3601 gtgcccaca tctcccagcc tcccagggtg cccccctcac cttgatgggt gcgttccgc
3661 agaccaaaga gagtgtgact cccttgccag ctccagagt ggggggctgt cccagggggc
3721 aagaaggggt gtcagggccc agtgacaaaa tcattgggggt ttgtagtccc aacttgctgc
3781 tgtcaccacc aaactcaatc atttttttcc cttgtaaatg cccctcccc agctgctgcc
3841 ttcataattga aggtttttga gttttgtttt tgggtctaat ttttctcccc gttccctttt
3901 tgtttcttcg ttttgttttt ctacogtcct tgtcataact ttgtgttggg gggaacctgt
3961 ttcactatgg cctcctttgc ccaagttgaa acagggggcc atcatcatgt ctgtttccag
4021 aacagtgcct tggtcacccc acatccccgg acccgcctg ggacccccaa gctgtgtcct
4081 atgaaggggt gtggggtgag gtagtgaaaa gggcggtagt tgggtggtgga acccagaaac
4141 ggacgccggt gcttggaggg gttcttaaat tatatttaa aaagtaactt tttgtataaa
4201 taaaagaaaa tgggacgtgt cccagctcca ggggt

```

FIGURE 63. EphrinB2 Gene

```

1  gcgcctcgga gctgcctgcg ggcgcaacgcc gtcttccccg ccagtctgcc ccggaggatt
61  ggggggtccca gectgcgtcc cgtcagtcgc ttcttggccc ggagtgcgcy gagctgggag
121  tggcttcgccc atgggtgtga gaagggactc cgtgtggaag taccgtctgg gtttctgat
181  ggttttatgc agaactcgga tttecaaatc gatagtttta gacctatct attggaattc
241  ctggaaactcc aagtaagtgg cgtccgcgat cccctatgt ccccgccccg ggtccgccc
301  cgcggtccgg gcgggaggag gggtcagtc cgggggectc ggagcctgtt tctggaacct
361  cggttccccg tccccaccc ccaacccccg cccatttca ctaggaggag actcctcgct
421  cggttttcca acccgagccc cgttggaacg gacggtctct ccgcctttcc tccccgaac
481  gctcccaggc gctaaaagct actatcggtc cgggtgtcaa gtccgggaag gtgtccgatg
541  gcgataactg accctctcct gttttcgagg acgaaggaca tggccacaat ctaggctggc
601  cggcacgcgg ggactggtgg gctctggaga gaggcggaga tgctgcattc gcggggagcg
661  cgggcggcgt ggctcggggc ccgcgggcgg gcgaccgggg tggcaggacy ctggcagcga
721  agcgcgttct ggagagggga gcctggagtc gctacgctgc ccgcagagcc ctggcagcgg
781  ggcgccttgg caccgcgccg ccagcccgag ggtgcgcggg gagctcgctt gcttcgcagg
841  agaactcggg cgtcgagccc ttctctcgc gccggggaga cgggccttag gcttctccct
901  gagggccccg cgcacctcgg cctcccgtt cgttcataag ccggtagccc cggagtatgc
961  ggtctcgatg gccgacctga ttgtaatgca ctctctataa aagcttaggg ccctgcccag
1021  tcgacactgc tctgaagcc ttctccctcg ggacctggt aggaatggga tcttaggat
1081  cagatttgct cttaccggac tctacagccg ggagcagacc aggccttggt gagagtaact
1141  ttcagtttgg gccaccagag tgcattcaga atttagaaaa tccatccat cctaaatct
1201  gtgtggtcat aactcgtagt catctgggta ttcagtactg tgtatccctt tatttcgaat
1261  cacagccaaa acatatttta cagaatcttg gaattgtagt ctgggaaac ttggagaaga
1321  agtatgcaga cattagctgg tttctggaga aaacgtttga gatcagaagc aaaatcaatg
1381  gcctaattga agttgagcaa gttgggcctg gttttaggag aaaagaaatg ggggattgat
1441  ttagaaatca cgtcttaaag gagtgtgtcc attctcttaa aagtgtcaaa tttcaaattc
1501  actaacatgt taaccaagaa tcccttcattg aaaagggcga aaacgtcggg tacaatcgg
1561  tttaaacaaa tgtttgatg atgctagaag gcactttcaa caccgctcat caggagaagt
1621  tacttagctc tgctccttc catgtagtct gctcttgcat ggattatatt ttaatgtaa
1681  attgttgat ttgctgatga agtactggcg gcggcatctt tgcctcgatg ccggtcggg
1741  aggcgcagg tgggtgccga aggagccggg ctaggacctc gcgcagcagc gggccccga
1801  gtccgggaga ggccggcggg cggcgagggc ggtcgcgggg agcccgcggc gccgtgccc
1861  gcccggtgcc tccagaggtc actcttccat gcggaatcgc gcagcgccag gcctcgcccc
1921  tccccaggc cgctgctcc agccactctg cactttcact gaccggttct ctttagggt
1981  gttttttttt tcttatgag gatttaatat ttctgtttaa atctagttag aagcaattcc
2041  gttagcctct tcagcgttta gttcgggtgtg tgtatcttta tctttgcgt atattaacta
2101  ttagtttggt tgtatccgtt aggagaatta gaaataccta gttgggagaa aaagaaaagt
2161  agaacaatag ttatttcaac ctaaggttta gacgttaata acttcttttt gtaatgtgtc
2221  gagatggggg gtccctgggg gaggtgacag gtactacca cccccccc ccattctgat
2281  gatgaagatg agtctgtctt tccagctatg tccagacctg cgagggcctt gcgtttctgg
2341  aagcctgccg tttgcgcgtg tgaggttgct gctgctgtct tgtcctccac agcagcattt
2401  cttttaaaaa tctctgata acggcctgcc tggatgactg gataatgtgt gcttggaaaa
2461  ggtctccctt gcagctgaat gctagctcca gagatcagaa agatttcttc ctgtaggagc
2521  cataggaaa agtctctctt aagtttttga gaatgcatac aacccctga tgacaggggg
2581  tcgctttcct tggggaagtt ttatatattt tccagagga aagtttgaat cggtaaatat
2641  gatgtggcag gaaggtaatc aaatgcattg aagtttcaca tcagtcccta tgaactgtgg
2701  aacaattcat ttgtaatgaa gccgccatca gtaattagat ttgtttcatt cagaggtcag
2761  ctttttttag aggtggtcga cacagggagc atgcagcagc tgtttgata cagggtccag
2821  aaaaaccctt gtaaatcag cgtctccta actactttaa tcacattgtc ggctctcccc
2881  tccctgactg tatgtaataa tggaaagatg tccgtcgtgc tgaaacagta gtcgctgt
2941  taggttattc acattgcttt gatagttct ggtagagttg ggtccgttgt agccattttg
3001  gttgtttaaa gttttggtt tttttttgtt ttttttttaa ttcagcagag aacagtaatg
3061  cctagcttcc gtttttaact taacacttca gtagaacatt ttcttccaag agggagattt
3121  tggcctaagt aaagtagtgg gctctttttt aaaaaaaaaa taattttact ttaatgtgag
3181  caaatctgta ttggtatggt gttctgcaat gcattacact gactttgaaa atttcagta
3241  ctaatgcctt atgtctgggg ttaccattcc ctgtgcata catactagtt agttaacata

```

Fig. 63(b)

```

3301 gcatttttgc tttcccatgt aattttttcc ctatataata ctggattcct gataactaatt
3361 gacttgatac aaaagaatgg ctggatgata tccagataac gtataataca tgggcttcac
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3481 atagtgtgtg ttaaacagtc cattcaataa catatataag ccagcctgcc ttccattgtg
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3721 ttgtcaggat gataaactgt aggtaatgga ctgtcgttgt tctgcaggac aactgagcca
3781 ggcagagcac aaagactaag ctaaagcgat acctcacaac atgcttggtg gccttctttt
3841 cagatgagaa tttatttgag aatcatgtgt ctagggactg cacatcttaa cctcaacagt
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3961 tctaaattc ttacaaagca taagctgttg acgctggttc tgccgacgca aagacatgca
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6601 ttgttgttgt tgtttttttt ttttaaagag cagcataggg ccttctaga ctcttgatt
6661 ctgtgtctga caaaaatggt cattaaatga gcaatattat aatttagacc catttctctg

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Fig. 63(c)

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6781 ttgttgactg tttttctcgt ttctatggga attactgtag ccattactat gtagctttca
6841 tagactcaaa acattttttaa agtattgcat ataggctggc catatccagt gcctgttact
6901 ttaccttctt tttctaactt aatgcagcag tctgtattaa cagatccatt tcatttgtct
6961 agcttcatca gagagaggct accccctgat ttacaggctg ctcacatcca agcaccttgc
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10081 tgcatacaag gaaaaatta aaatactctg ttaataaaga ctatagcata atactttcac

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Fig. 63(d)

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Fig. 63(e)

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Fig. 63(f)

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16981 acccgccctca gcctcccaaa gtgctgggat tataggcgtg agccaccacg cctggcaaca
17041 taaggactat tttttaaagt ttttacaatt atgactgtga agttgaaatg tctaaattat
17101 tagagatcca gtttagatta ctaaatattt atgtctaatt gagatgatta gacttagcca
17161 aagtatccat gtagaagtat tagagtctag attggtgaaa aacttgaaaa agcttggctt
17221 aagttcaata ggtaatccaa gagtaaaaac agattccaat atcagatctt ttcaccatag
17281 tcatgttaag tttggaagcc ctacttgagt gttccagtt tttccacat tatattgtgt
17341 ctatatttga ttcaaaggca gggcatctat tgtcttgctt aggactgatt cacttggaaa
17401 agccactgga gttgcctatt tccactcagt atgcctcact cttagagtag cttcccatgg
17461 tcccaggca ggccctccag tgagaatgca ccaagccaca cgccatggcc tgggaagcag
17521 tcctgaacct ggagattgtc ttgatggaaa ggaagaggca gccttccctt cccaggaaga
17581 tagtagagag cctgctctga cttcgctcag ggatggaaact ggtctggctc agttctctct
17641 cctgtgtggg acatgaatca ctcttgggtg tctttgcttt ttatttgggc ttaaaatcag
17701 cagactttat taaatgacac ctactctaa ccactctctg tctgggcgaa gtttaacaag
17761 aacagcctcc ccccatgtgg tatgggttgt aactgtggcg gtttccctct cactgttttg
17821 gttacaagat gaacattatc tgaacacaca gaaagaaatc tgtatttggc atccataatg
17881 gaaagtcagt ttagtaattt aaacttagcc agttatcatc atcataattc tttttaacac
17941 tttcaaagtc agcataggag aagtgtattg ttgaatatta caaaatattt agggcataga
18001 tagatgtgct gtgtagtttg atttgttaat gtgtctaagc aatcaaagca acagaattca
18061 aatataaacc ccactacttc caaaatagga actctgttta ctgacttgat tataacatat
18121 ggaactcaat tgttttccat taaaaatga tactattagg aaactcacc cttttctttt
18181 tcatatatat tctgctattt gcataattgt ctggagtcca tatgtaatat taaatgtaaa
18241 acacaaatgc catgtagctg gtctgtttct tctcacctt ttgggtcctg gcctcctggg
18301 gaaggggtgc acatctgagc cgtgggtctc gatgactgcc tcggaagaag cctcttccct
18361 tcaggcacca ctgatgtgtg cttgggtgtg agctagactt tccctggctc tccatgtgac
18421 gctcacatgt gcgtgtcttg atttccctta acttcatggc ttatctatga acagcttgat
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18541 actgaaatgt gtgcagagaa agggggcctt tctgtcatg ctcatgggc accagtgtgt
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18661 tggggccttg gacagtgtg agccaaaagc aagtgtcaa aagcagctgt gtttgtatta
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19021 tcattcctat ttttgttca attaatacat tatttattga gcactactc tgtgtcagcc
19081 ccttgggtgt ttaatactga attagtcaca tgtgggactt gcctgccctc agggagctag
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19681 agcctcccca ccacacttcc gctttgataa gcacccccg gattgccgtc actgaccatt
19741 atagattttt aacaaagtgt gacagtacac actgaatgaa aactttacat caaggaaggc
19801 ctggcgtgtt tgtaaaatga attaaaaggc tcattaaatg atttatatga cttacgcctt
19861 ctgaaaatat ggctcaaac acagagatcc ccaaagccac accgaccctt gcgtcccatg
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20101 gcttagtgag ccaaacttga gacatagggg gtaatgtggg agagttttaa gatttgcaga
20161 gatgtacagc ttgggagggg gtgtaatgca ttttcttaa agagctgaat gaatggttga
20221 ggaaatgggt acatctgggt tggttaagga tcctaactc tgaagcctgg gatgccccca
20281 gggcttgtaa tttaggaata cttcccctaa tagtagctaa cccttatata gtgctgtctg
20341 tgcaggctac aaaaggagca gattaaggat agaaaagggt tggagtgtat gagaaacctt

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Fig. 63(g)

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20401 aggcaggaat tgactcctgg tgtttgtaaa ccttaaagat gtctaaaaa ggtcaaggaa
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20521 tttgtactta ctgcccggca tcttgccctga gggttttaac ctccagcagca catcagaatt
20581 actgtgtgtg tgttggaggg gctgggggag ataaagaaat tagcctcctc ccaaaccattc
20641 tgattcagtc tgttacttga gaaactgaat tgtgttttgt ccataaagaa gatgaaattg
20701 tctacagaga acacattgcc attcacaagg ttgaggggat accacagaga ggctcccact
20761 gtgatttgca tttgtcaaaa gttctagaga attcttcaac agtacacaca tggttgtttt
20821 aaatatatca ttgttataaa aattcgtttt gagttctgtt tcacagaaag tttttttgaa
20881 tgaatgaatg tcatatatcc ttgctaaagg agctcagtta aaaaaaagg gaccatcctt
20941 ctcttttggg gggtgtacag taacacattc ccaagaaaga ggtaacagcc acatacattt
21001 ttcttcccaa taaagagtgt ggggttttaa tatgaatcca tagtatgatt tctgttatgt
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21121 ataaatcata aactattccc ttggtatggg ttgaaattg ggggtgccc atcatccttg
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22261 cttttttttc ttatgctttt agattctac ctggaaagg actggtacta taaccaaga
22321 taggaagaaa attggaatatt atttgcctca aattggactc taaaactgtt ggcaggtatg
22381 aatattatata agtttatatg gttgataaag accaagcaga cagatgcact attaagaagg
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23101 aaaccagatt cagaagaaaa agacgaaact tgggttgctt agtacattac tcttttttgc
23161 atacatatat ataatttgac acgctgtttc aagaagagat ggtacgtatc ccttgggtca
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23461 gacttcagtt tattagggaa ctgctatctg ccaactggttt attatttgcc ccaagggtga
23521 ctctaaaact ttaggtagga gactcttggt gatcaaaactg aaactcttgc atctcaacct
23581 atgagccgca ctttattggt attttatttt tttagagaca gggctctagt ttgttgccga
23641 ggctggcgtg cagtggcatg atcacagctc actgtagcct tgaactccag ggctcaagt
23701 atcctccac ctcagcctcc aagtagctcg gactacagge atgtgccact gcacccagct
23761 caagagctac acttcaaagc acagaatgaa aacctatttt taaagccaac ttgatacata

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Fig. 63(h)

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23821 gagtagctta ccaagaatta gtaacaacaa caacaagaaa aaaaagagag aatgtggtag
23881 agtatatact tagtaaggag taattattat aaaataaaaag cattctgaaa tgaaacaggt
23941 agatgggggtg gccaaagtatg cagcatagta gggaaatctt tgaaaatgta aaatagttac
24001 caggtaaaat aaatggaaac ttttaagcttt tggaagccta acaatgtatt tatattagta
24061 aagactttat. ttttttattt tattttattt tatttttgag acggagtctc tctctttcgt
24121 caggctggag tgcagtggcg tgatctcggc tcaactgcaac ctccacctcc tgggttcaag
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24241 ttttttagtca agacgggggtt tcaccatgtt ggccaggatc atctggatct cttgaccttg
24301 tgatccttcc gccttggcct cccaaagtac tgggattcca ggcgtgagcc accgcgcctg
24361 gccttagtaa agacttttaa agtaagactt tttcagtga agctactgtt aggcattgaca
24421 tttacaggca actgaaactg atcagatgca tttattaaga aggttaatgc ccctaggtgg
24481 ggtggggagaa agaaggtcgt ggtacgggaa gaggggacac actagagatg agatgcccta
24541 gggcagtgaa cgcagtgcce taatgcgtgg atgcagccca cgtccaccga taatgccgac
24601 acaccagag tctctcttct tactttagct tatgacttca cgaagaatgc tttgcaaatt
24661 ctaagttcgc actgggcgca agtgggaattt tagtaaacat taagagttta acctttagt
24721 tgaaataata tgcaagatat gcaaataatt gtttaccac atctctttgc ttaatgtggt
24781 gagcatttaa taattgcttt ttattaatac atgagagatt tgtatttaga agcagtttaa
24841 tttataatta taatattaat ctacacaata acgacatcta ttattttctt tttttggaaa
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25681 caaatctgag tgtctagtgt gtaagcgcct tcagaacgag cagtgttata ataaatatgt
25741 tattgtgtgc tggtttcttt ccatggagag gaaaaagaga cctgatgctt tggaggagt
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25981 aaaacgcttt tagtattgtc attgttctgg ctaatgatgg cggctctctc cagtttcaag
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26281 tatgcatcct cattcattct tctcatagat ggttatttgt tttttaactt gtggcaaaat
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26761 aaataactgt tctgaaattg cctatttttca agggaagctg tgtcttagac ttactaaatg
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27121 tccagtgaac agtagctaca gcagagctgt tagacaaaga aaaccgtatt aatgaagcgc
27181 ctcccaattt agcttcatat ggcttttgca ttattttgct gcaaatccat agctaagaca

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Fig. 63(i)

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27241 catcttgtgg catagtccgt aagtcacatt tccgaaggac tgtttgatta aaggttgttc
27301 tgtgagatcc accctgtgtt gttcatggca tccctcttga ggccctccctc actctccatg
27361 ccttggcaaa gtcttcccta aggaacactg aacaagtctg gagaagctgc catttcttag
27421 ggccctcatt ggttcagttg tctatagctt tttatttttt attttttttt taataaagag
27481 tatgtaaaat tggaaagctt cacaacacgc tttgctattt tttagacatg tactccactt
27541 ctaagcaaaa tcacaaaata aagtaaaatg cttccacaaa tataatgaaa caatatcttt
27601 aaagaatcaa agcagaagaa cttcagagtc tgttgcttat gttaagcata tatttgtttt
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27721 tactgaatgc actgttcttt agcaagatag ttacaggagc tttcaaagt cctcttaaca
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28861 ttgcgttatc actgaggcta gctgggaaag tagatcagcc cattagtctg ataattcgaa
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30601 ccttatttggg gttactactg gtctctagat ggtcaaagca aacaacatgt ccatctaagc

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Fig. 63(j)

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30661 tgtgatgtcc atctaagctg tgtgtgtcca tgagagtgc gcattttctc ctctgcagtg
30721 ttgttatatt ctaaactgtc agcagacatt aattcggtcg ctggtgaagt cccaccgcct
30781 agagatgaac tctgcctccg atggatgttt tccacttcag tgccactcgt ctcgcaatta
30841 ctgggtcatt aatatcattg catgcaatta gtgacagtag aaagagctag aggggtgtgg
30901 gatgtgcacc ctccccacca tgaacttttt actctgaccc ttcccagct agaccttttc
30961 gtatcttggc aaggatatatt taatgattga gactgtcaga atcttcagag caggcactgg
31021 attatgtgct ggaaataatt cactcaaaca cctgcttctc catggttcag aatattttca
31081 ttagatatta tcaactatccc ttccctggga agtttcattt ttaaaaatct gatgcttaag
31141 tacagctaata atagacaata gggaattatg ttttatcttt agaactctta cattattctt
31201 ttcttttaaaa atgtgagctg agtcattgct attgcagtgg tcatctggcc gcctattttt
31261 aaaacacaat tcctctatct tagtagattt tggcccatat taagcatatc aagaatgact
31321 tttttttttt caagacatgg ggttttattg ggggcttata tacaaggaaa gagagagtcc
31381 agtggcagtg ggctggacaa gatattcaca tggccctgtg gcagtgaagt gggcaggaaa
31441 actgcaactg cttgcaaaca gcatgtagtt catctatagc attttcactt aacaccaccc
31501 agctaagac ttccacctgg caaccttcat ttaatccaga acttaggacc tcgagtcctt
31561 gtacggccca tgttccacag gatgggcca gggctcagct gttcctcata gacaaggaat
31621 gactctccac attggccact cccggattcc ctagctcagg acacatatcc aggtgtgtct
31681 aaggctggct cttctatgtg aagttactta ttcttttacc attgactctc atgttcccac
31741 tatattaagt ttttctgaat tactgtggca ataagaaacg gtcccttaaa ttatactaga
31801 agaaaagctt ttttttggtt ttgtttttta ttttgaaatt atgttaaatt ttttttctta
31861 actgagagat tccacctgca taactcttca taacttttaa cagtaagatc tttagacttag
31921 aaagtgtgtt ttttctcaa cagaatttat taaaaatcaa gacaccaagc tgttccaaac
31981 aatagtttga ggggaaataa aataaacaac tccataaata atcttatgtt gttaaacatg
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32101 gtactgtctg gtctttctca gaaaagcgtc agtgtacatc actgagcctg gacggtatgt
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32641 tccatgttta acactcttct ttctgagctc tgggtagaat gtccattat tgttcatcat
32701 gaattttga aattaaagaa ataaaactgt accattttct ttaagagcat ccatttgtac
32761 ttgataacat ttcagtcata atttcaatga tggcaaagag gaggggagtt ctaaactgtg
32821 actcaatttt agaacttact ttttccaaat tattctgttt agtgcagaaa actaattaat
32881 agtgttgcat agaaaagtca ctgaagctaa gccagttatt acttcttaat gcatgattta
32941 ctgctttaag ttttcaaaac acaaccatag caatgtggta ttaattcaag tgattcttcc
33001 tatcatattg aacgatattt tcacgggtga aaaactcaca catcctacat cactgatagt
33061 ttatacagtg ttttagctgt ggctccctgc atgcaaaata agagttaatc aaatgtcagt
33121 gagaaccatc tcatcaagta gagggcttgt tttgtttaaa ttaactttgc taagtataaa
33181 tttcttcttg aaaataaatt ctgggcccgg cgcgggtggc cacgcctgta atcctagcac
33241 tttgggaggg cgaggcgggc ggatcacgag gtcaggagat cgagaccaa ctggctaaca
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33361 tgtagtccca gctactcggg aggtcgaggc aggagaatgg cgtgaacctg ggaggcagag
33421 cttgtggtga gccaaagatc caccactgca ctccagcctg ggtgacagag cgagactccg
33481 tctcaaaaaa aaaaaaaagg aaaataaatt ctctgtatt tttctttctt caagtgagge
33541 catttagggg aaagtatacc ataaaacttg ctctaagata aggcaaattt ggtattatag
33601 gatgaagtgc tatgtgattt gaagtgaatg tgaatttttt aaatatatta aactaaacaa
33661 gaataatgag gccctcgga agtcatgatt atatttctca tttttctcat tttaaagcca
33721 cagtgaaaaa cacataaaag gaagaagtta gaaaaaaaaa tgaatgaaat tcttttttct
33781 cttttggcaa attaaataga tgtttctgtt tcagaagatt ttattaatta actttaaaga
33841 aacagtcatt ttttttggc attcagtga cactatcatt tccatgttta gaactttctt
33901 tctaagttag catcttaaaa gataactgtg aaactcaagg cattcaacta cattaatttg
33961 agtttcagaa attgaattct tgtttctaga gtacatagtt tgaattgatg tcagggtgtt
34021 aaatagataa atcttagctt cctaggttgt atattcacac taattatttt tttatcagcc

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Fig. 63(k)

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34081 ttcttatttt tcaacttacc ttattctttt tgtttttttg acactcagat ttgatagccc
34141 tgtggtagaa gaaaacagta atacagtttg gtttgttgtt gtgttttgtt ttattttaaa
34201 gtcacggctt tgctttccat gttgttactg gattatgctt tttttaattc ttcagtttgc
34261 caagataaca gtcttccgat cttcagaagt ctgtatcaag ctttaaggaaa ctgatgtgta
34321 ggaagactcg cctaagaagt ccaaattagc aaggctagca tgtgaggaca tgctggaaaa
34381 gaatagtcc catagatatt gacagagaat gttcataaaa tgctacttgt tttgtggtta
34441 catgagagta acttgtgtcc agtgcagctg tatgtaaggg caacgttttt attctgacga
34501 ctctgtgggt ttcattgacc tggatgctta tcatgtctct ctgttggact tcttcaacgg
34561 agttgatata aatacttgct tccaagtgtc catctgccct ctctccatc ctggcccat
34621 acaaatacgc tacattttta aataatttga aataacctca atagtattta tatttcttgg
34681 tgcttcatc tttccataag aactgtgata ccattattct gtaggatttt tttgtgcttc
34741 cccgtttcac atctctgtgc cagtgaagac catatatcgg tgcaaatcca gaagtttgat
34801 tgtccatctg attagcacac tgttagcaat gttgtggact aaacacagcc aagatgtggg
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35041 atactcttcc cagtgactaa gaactgcaga taagtatagg tgcaaataga tggcaaacccg
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35161 gaactttttt gctgagcagt aatctctacc cactggaaat taggccctgg ggggaacaat
35221 gtagtgactt ctatatactt actatctgca gttagacccc tgaagcaaaa gcttttaaaa
35281 acaggctgta aaatgcccat gtatctttat taagcctatt ttccaactgg atagagaaat
35341 tttctggtaa tttttaaat tgtaaagtct atttttttcc tgagccaagg gaaaaaaat
35401 atctgggccc taaaagctta gttataacaa tgttattttt tctatctctg aatgattaaa
35461 tgtgatttca tttatgtagc aatactatga ttgtggctgc attagatcac gctgatagaa
35521 agatacaaaag aaaaactaag tataatgaac taacaattta ttttcaactt tctctaaagt
35581 taaaaattcc cagtacattc aaatgaacaa tgaaaataat tgcagaattg tctcctgaaa
35641 tggaaataga ttttttttcc caagcattag caatttcttg ttatttttca aaatcagcca
35701 ctaagccttt cagagcttct tggtgactat tgcaggagaa atcagaatat taactctgtg
35761 gttttatttc agagttcgct gccaggaagg aggtataatt gggataggag actttttttt
35821 tttagctgtg tcaactgttc aggagggggg tttggaacct cagcataaga attacactct
35881 gtgatgagga tgtagcaggg gagaagaaaag gtgattttca ctatgggaag ctatacttac
35941 atcaagtata aaatagactg aagtcatttt gaattacgtt atacttgtaa agtttacctc
36001 ctggagtttc agtttagtacc agtgtactaa ctgggttaaa acagttcatg gcaccttaga
36061 ctattttttt ctcatggcaa aaatctttcc tgggtggaacg tgtaaactga ttttaaatgc
36121 ccttttataa gcaaccaagt atttgggatg ttattttgat attagtagtg aatttttcag
36181 tatcttccag taccctttgc aagtcacagg ttgactttaa aggaaaagaa gcaaaatgct
36241 gaatatagca gaaaaactgt ctgcattcag actgttcagc ccacttttgc tccccacgtg
36301 gcaagcacac tccccaaac aagcaatagc ctgtggcttc agacttgaat gtttccctct tccccacaca
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36601 ggtaaacctt gggagctccg cacaaaagca ttgatattca gaaaaggcac tgacctacaa
36661 attaaaagaa aaaaaaatca aataatgtgc acctcttgtg cttccagttt gacaaagcag
36721 aagtcacag cagtttctcc ctctgcagac gcagttctca attctattta caagtaactg
36781 ctctactgtg cctgtttttc tcttgctgat actcatttaa ttgtttttct tttggatctg
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36901 tctttctgtg cactgccctt cagatctcat tttgtcattt ttcagcttag tgttgaaact
36961 tttagcaaca aaaagtcagt tacttacttt gagtaagtaa ctcaaagtaa gtttaacttg
37021 agtttgagtg cacttttgcg ttaggtttca tttatgtgct tgtgaattta aaaacatttg
37081 gattccacct gaatgaagta aaccaaacat tttaaactat cagccagata gagacatcag
37141 cctttcactt ctttctatat gcagacatat cctaattttt tagaaaaatc aaataggaaa
37201 attctcaaca attaatgaa gattatagct ctgctctgaa atgggtccaga aataggatct
37261 gctcatagaa actcatagtt tgaagcctct gggaggaaaag gatactttaa aatttagtca
37321 catatttgga ggagggaaaa gggaaagagc agaatgaaga actgaaaaaa atcacacacc
37381 ggggcctgtc gtgaggtggg ggactggggg agggatagca ttaggagata tacctaagt
37441 aaatgacgag ttaacaggcg cagcccacca acatggcaca cgtatacata tgaacaaac

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Fig. 63(l)

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37501 ctgcacgttg tgcacatgta ccctagaact taaagtataa taaaaaaaaa ttttaatagc
37561 cccattaaat aattaaaaag atttttttta gattcacaga agtgtaaaaa attttttaggt
37621 tttttttttt ttaagctgtc tgctgaatag tttcttaatg gtotacaatg tttgtatcta
37681 caaacagata ctgtctgtct cttactaccc ttccaagaca agtattatta tggcaattat
37741 tgcccagttt cccgggaaaa atttatccac agttacagaa gaatgagatg caattgtgag
37801 actgtaaagt ttaagcaagc actcagagaa gcacagtgat atgtatgcac agaagaggca
37861 gtctttgttt tgaggaaaac agtgaaagta aagttaattc aagaccacaa agacaagtaa
37921 ataagtgctt tttttttgta gttaatatata tttcagtggg atgcatattt ctaccataaa
37981 tgcatataga acttgtttgc tgacctactg tttggaaaac aaacaatccc attagaagaa
38041 tgtctttggg atttattttt accagaaaat caatcctttt ttcagtccct tgcaaagtac
38101 agtgttacaa gccaaagactt tgataatcag gtagaaaatg gatttaaatt gcagaaatgt
38161 atatgaaaca cttttgttcc ttgccccttg aacttttaggg gaatgaaaat gtctagcact
38221 ctccaccttc tttctctccc tggaaacttg actgtaattc aaagcctgtt tctcattaaa
38281 gtacctggca gcctatctct ttacagcttg agttacaaag ctattcagag acctcgctgg
38341 tctaaagaga cagaacaagg atgtgtttta atagagcata ggctgttgaa aaaaaaatg
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38521 gccacaggac ccagaatgag tgggtggcat gtgtgtgaac cctctattca gccagagttt
38581 tcccgcacaa ggtagtttgg ttgaagaggg tgactaagggt tgacattggc agtaataaca
38641 cgtatgttct tctgatttac aaaacgatgg aggaaaaagg ggagattttg aagacctgat
38701 ttctgttata ctctttaagc atgctaagg ctgaaaaaag aagacaaggg ttgtgggagg
38761 ctctgtgtct agtgtttaca gaacttggat gcttgacaaa cagagcgtca agctaattgt
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39661 aaaatatcca gaatgaaaac taaaagcttg tgcagttttg ctcatttctg aatcttgact
39721 acagaagagt tttgttcatt gtgacttttc caatatagat aacctattgt gcagaaagaa
39781 ataattattc ttctaattaa aaattgggtat agtagtcaat caacttgctc agttaaattg
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40621 ttaaattggt acatttttaa atattgcata atagtatttt ttcaggtggg tatcgttatt
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40801 tctgtatttg ttaccatgct aatgaagggt ttatagagta gctgttgagc agacatcagc
40861 agttttgtat taggattgtt gtgtgcttgc ttggctgttg tgcaaattha tctgtctgag

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Fig. 63(m)

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40921 caatattcca tccctttcca agagtcaagg agggaagttg ttattttctaa ctttcaatga
40981 caagatgtgt caaattcttg tgacaaactg ataaatggat aatataatga tgccaggcag
41041 ttttttagtg cttaacattt gggctggcag tctgttcggt gtgagagttt ctgctgcctt
41101 ccaaataatat tttaagtgt aatcaaataa tacagacgag ttacgagctg aacattttcc
41161 caggccccct cactccttcc gcgttcccga gctgttctgt tctgccagga ggcagggtc
41221 ttcttttagaa ggcaggccct ttgaaggttt gcatgaaact ccctttctca aaggaggcgg
41281 aagagcaata ccacataaac gctcaccgct gacctggaga attggccact tcccttttcc
41341 ttccctgccc ctgccccagg ctggctgaca cgggttagaa gatgaagcaa gatcaagggc
41401 tggctgtcac cgacagtctg tgctcttgct ggataatgat acaaaggaaa ccctgtggct
41461 tgggagggtg gggaaagtccc tcctagagat acctctcatt tccttttgcg ttgagctcct
41521 agacgaggta ttggcgaggc aaagtccagc ttctagttag taataagcct ggcttatttt
41581 tcacattttt aagggtcata aaagcagtc gtctgactg ggacagcagt aactatctct
41641 gaccttttct gtctccgct ctgcaggttc tagcacagac ggcaacagcg ccggacattc
41701 ggggaacaac atcctcggtt ccgaagtggc cttatttgca gggattgctt ccccttttcc
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42061 accctgggtg tacctgtgct tcccagagg acacctaatg tcccgatgcc tcccttgagg
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42361 gaagccaagg gaagacagtg gtttgtggac gagagggctg tgagcatcct ggcagggtgc
42421 ccaggatgcc acgcctggaa gggccggctt ctgcctgggg tgcatttccc ccgcagtga
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42541 gtccttactg tctcactcgt tctgttacc agggctctgc agcacctcac ctgagacctc
42601 cactccacat ctgcatcact catggaacac tcatgtctgg agtcccctcc tccagcgt
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42781 ggggctgggg aaagggtgg ctgcaattgc agctcactgc tgctgcctct gaaacagaaa
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42901 cgaagaggcc agtaggagac acgacagcac acacagtga ttccagtga tggggaggca
42961 ctgctgttta tcaaatagcg atgtgcagga agaaaagccc ctcttcattc cggggaacaa
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43261 tgaaaagcca aaggtaaac aggtgtaat tccatcatca tcgttggtat taaagaatcc
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43441 actgatggag gctgcagcgc ccggtgctct gtgtcaagg gtgcacata aggcagacct
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43561 tatttataat aggtatatag aacacaaggg atataaaatg aaagattttt actaatatat
43621 attttaaggt tgcacacagt acacaccaga agatgtgaaa ttcatttgtg gcaattaaagt
43681 ggtcccaatg ctgagcgtt aaaaaacaa attggacagc tacttctggg aaaaacaaca
43741 tcattccaaa agaacaata atgagagcaa atgcaaaaat aaccaagtcc tccgaaggca
43801 tctcacggaa ccgtagacta ggaagtacga gcccacaga gcaggaagcc gatgtgactg
43861 catcatatat ttaacaatga caagatgttc cggcgtttat ttctgcgttg ggttttccct
43921 tgccttatgg gctgaagtgt tctctaga

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FIGURE 64. EphrinB2, mRNA

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1  ggcgcggagct  gggagtggct  tcgccatggc  tgtgagaagg  gactccgtgt  ggaagtactg
61  ctgggggtgtt  ttgatggttt  tatgcagaac  tgcgatttcc  aaatcgatag  ttttagagcc
121  tatctattgg  aattcctcga  actccaaatt  tctacctgga  caaggactgg  tactataccc
181  acagatagga  gacaaattgg  atattatttg  ccccaaagtg  gactctaaaa  ctggtggcca
241  gtatgaatat  tataaagttt  atatggttga  taaagaccaa  gcagacagat  gcactattaa
301  gaaggaaaat  acccctctcc  tcaactgtgc  caaaccagac  caagatatca  aattcaccat
361  caagtttcaa  gaattcagcc  ctaacctctg  gggctctaga  tttcagaaga  acaaagatta
421  ttacattata  tctacatcaa  atgggtcttt  ggagggcctg  gataaccagg  agggaggggt
481  gtgccagaca  agagccatga  agatcctcat  gaaagtgtga  caagatgcaa  gttctgctgg
541  atcaaccagg  aataaagatc  caacaagacg  tccagaacta  gaagctggtg  caaatggaag
601  aagttcgaca  acaagtccct  ttgtaaaacc  aaatccaggt  tctagcacag  acggcaacag
661  cgccggacat  tcggggaaca  acatcctcgg  ttccgaagtg  gccttatttg  cagggattgc
721  ttcaggatgc  atcatcttca  tcgtcatcat  catcacgctg  gtggtcctct  tgcgtgaagta
781  ccggaggaga  cacaggaagc  actcgccgca  gcacacgacc  acgctgtcgc  tcagcacact
841  ggccacaccc  aagcgcagcg  gcaacaacaa  cggctcagag  cccagtgaca  ttatcatccc
901  gctaaggact  gcggacagcg  tcttctgccc  tcaactacgag  aaggtcagcg  gggactacgg
961  gcaccgggtg  tacatcgccc  aggagatgac  cccgcagagc  ccggcgaaca  tttactacaa
1021  ggtctgagag  ggaccctggt  ggtacctgtg  ctttccaga  ggacacctaa  tgcctccgatg
1081  cctcccttga  gggtttgaga  gcccgcgtgc  tggagaattg  actgaagcac  agtccggggg
1141  gagagggaca  ctctcctcgc  gaagagcccg  tcgcgctgga  cagcttacct  agtctgtag
1201  cattcggcct  tggatgaacac  acacgctccc  tggagctgg  aagactgtgc  agaagacgcc
1261  cattcggaact  gctgtgccgc  gtcccacgtc  tctcctcga  agccatgtgc  tgcggtcact
1321  caggcctctg  cagaagccaa  ggggaagacag  tggtttgtgg  acgagagggc  tgtgagcatc
1381  ctggcaggtg  ccccaggatg  ccacgcctgg  aagggccggc  ttctgctgg  ggtgcatttc
1441  ccccgagtg  cataccggac  ttgtcacacg  gacctcgggc  tagttaaggt  gtgcaaagat
1501  ctctagagtt  tagtccttac  tgtctcactc  gttctgttac  ccagggtctc  gcagcacttc
1561  acctgagacc  tccactccac  atctgcatca  ctcatggaac  actcatgtct  ggagctccct
1621  cctccagccg  ctggcaacaa  cagcttcagt  ccatgggtaa  tccgttcata  gaaatttgtgt
1681  ttgctaacaa  ggtgcccttt  agccagatgc  taggctgtct  gcgaagaagg  ctaggagtcc
1741  atagaaggga  gtggggctgg  ggaagggtct  ggctgcaatt  gcagctcact  gctgctgctt
1801  ctgaaacaga  aagttggaag  ggaagaaaga  aaaaagcaat  taggtagcac  agcacttttg
1861  ttttgctgag  atcgaagagg  ccagtaggag  acacgacagc  acacacagtg  gattccagtg
1921  catggggagg  cactcgtgtg  tatcaaatag  cgatgtgcag  gaagaaaagc  cctcttcat
1981  tccggggaac  aaagacgggt  attgttggga  aaggaacagg  cttggaggga  agggagaaag
2041  taggcccgtg  atgatataat  cgggcaggac  tgttgtggtg  ctggcaataa  gatcacagc
2101  tccgagctgt  aggagagtgc  gtctgctttg  gatgattttt  taagcagact  cagctgctat
2161  acttatcaca  ttttattaaa  cacagggaag  gcatttagga  gaatagcaga  gagccaaatc
2221  tgacctaaaa  gttgaaaagc  caaagggtca  acaggctgta  attccatcat  catcgttgtt
2281  attaaagaat  ccttatctat  aaaaggtagg  tcagatcccc  ctccccccag  gttcctcctt
2341  cccctccga  ttgagcctta  cgacactttg  gtttatgcgg  tgctgtccgg  gtgccagggc
2401  tgcagggctg  gtactgatgg  aggctgcagc  gccgggtgct  ctgtgtcaag  gtgaagcaca
2461  tacggcagac  ctcttagagt  ccttaagacg  gaagtaaatt  atgatgtcca  gggggagaag
2521  gaagatagga  cgtatttata  ataggtatat  agaacacaag  ggatataaaa  tgaaagattt
2581  ttactaatat  atattttaag  gttgcacaca  gtacacacca  gaagatgtga  aattcatttg
2641  tggcaattaa  gtggtcccaa  tgctcagcgc  ttaaaaaaac  aaattggaca  gctacttctg
2701  ggaaaaacaa  catcattcca  aaaagaacaa  taatgagagc  aaatgcaaaa  ataaccaagt
2761  cctccgaagg  catctcacgg  aaccgtagac  taggaagtac  gagccccaca  gagcaggaag
2821  ccgatgtgac  tgcatacat  atttaacaat  gacaagatgt  tccggcggtt  attcctgcgt
2881  tgggttttcc  cttgccctat  gggctgaagt  gttctctaga  atccagcagg  tcacactggg
2941  ggcttcaggt  gacgatttag  ctgtggctcc  ctctcctgt  cctccccgc  acccctccc
3001  ttctgggaaa  caagaagagt  aaacaggaaa  cctacttttt  atgtgctatg  caaaatagac
3061  atctttaaca  tagtcctgtt  actatggtaa  cactttgctt  tctgaattgg  aagggaaaaa
3121  aatgtagcg  acagcatttt  aaggttctca  gacctccagt  gagtacctgc  aaaaatgagt
3181  tgtcacagaa  attatgatcc  tctatttctt  gaacctggaa  atgatgttgg  tccaaagtgc
3241  gtgtgtgtat  gtgtgagtgg  gtgcgtggtg  tacatgtgta  catatatgta  taatatatat

```

Fig. 64(b)

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3301 ctacaatata tattatatat atctatatca tatttctgtg gaggggttggc atggtaacca
3361 gccacagtac atatgtaatt ctttccatca ccccaacctc tcctttctgt gcattcatgc
3421 aagagtttct tgtaagccat cagaagttac ttttaggatg ggggagaggg gcgagaaggg
3481 gaaaaatggg aaatagtctg attttaatga aatcaaagt atgtatcatc agttggctac
3541 gttttgggtc tatgctaaac tgtgaaaaat cagatgaatt gataaaagag ttccctgcaa
3601 ccaattgaaa agtggttctgt gcgtctgttt tgtgtctggt gcagaatatg acaatctacc
3661 aactgtccct ttgtttgaag ttggtttagc tttggaaagt tactgtaaat gccttgcttg
3721 tatgatcgtc cctggtcacc cgactttgga atttgcacca tcatgtttca gtgaagatgc
3781 tgtaaatagg ttcagatttt actgtctatg gatttggggg gttacagtag ccttattcac
3841 ctttttaata aaaatacaca tgaaaacaag aaagaaatgg cttttcttac ccagattgtg
3901 tacatagagc aatggttggtt ttttataaag tctaagcaag atgttttgta taaaatctga
3961 attttgcaat gtatttagct acagcttggt taacggcagt gtcattcccc tttgcactgt
4021 aatgaggaaa aaatggtata aaaggttgcc aaattgctgc atatttgctgc cgtaattatg
4081 taccatgaat atttatttaa aatttcgttg tccaatttgt aagtaacaca gtattatgcc
4141 tgagttataa atattttttt ctttctttgt tttattttta tagcctgtca taggttttaa
4201 atctgcttta gtttcacatt gcagttagcc ccagaaaatg aaatccgtga agtcacattc
4261 cacatctgtt tcaaactgaa tttgttctta aaaaaataaa atattttttt cctatggaaa
4321 aaaaaaaaaa aaaaa

```

FIGURE 65. EphB4 Precursor Protein

```

1 melrvllcwa slaaaaleetl lntkletadl kwvtfpqvdg qweelsglde eqhsvrtyev
61 cdvqrapgga hwlrtgwvpr rgavhvyatl rftmleclsl pragrsket ftfvyyesda
121 dtatalt paw menpyikvdt vaaehltrkr pgaeatgkvn vktlrlgpls kagfylafqd
181 qgacmallsl hlffykkcaql tvnltrfpet vprelvvpva gscvvdavpa pgpspslycr
241 edggwaeqpv tgcscapgfe aaegntkcra caqgtfkpls gegscqpcpa nshsntigsa
301 vcqcrvgyfr artdprgapc ttpsaprsv vsrlngsslh lewsaplesg gredltyalr
361 crecrpggsc apcggdltfd pgprdlvepw vvrgrlpdf tytfvtaIn gvsslatgpv
421 pfepvnvtt d revppavsd i rvtrsspss l slawavprap sgavldyevk yhekgaegps
481 svrflktsen raelrglkr g asylvqvrar seagygpfgq ehhsqtqlde segwreqlal
541 iagtavvgv l vlvvivvav lclrkqsngr eaeysdkhgq ylighgtkvy idpftyedpn
601 eavrefakei d vsvyk ieev igagefgevc rgrlkapgk escvaiktlk ggyterqrre
661 flseasingq fehpn iirle gvttnsmpvm iltefmenga ldsflrlndg qftviqlvgm
721 lrgiasgmry laemsvvhrd laarnilvns nlvckvsdfg lsrflenss dptytssl gg
781 kipi rwtape aiafrkftsa sdawsyg ivm wevmsfgerp ywdmsnq dvi naieqdyrlp
841 pppdcptslh qlmldcwqkd rnarprfpqv vsal dkmirn paslkivare nggashplld
901 qrqphysafg svge w lraik mgryeesfaa agfgsfelvs qisaedllri gvtlaghqkk
961 ilasvqhmk s qakpgtpggt ggpapqy

```

FIGURE 66. EphrinB2

```
1  mavrrdsvwk ycwgvmlvlc rtaisksivl epiywnssns kflpgqglvl ypqigdkldi
61 icpkvdsktv gqeyyykvym vdkdqadrct ikkentplln cakpdqdikf tikfgefspn
121 lwglefqknk dyyiiistsng slegldnqeg gvcqtramki lmkvgqdass agstrnkdp
181 rrpeleagtn grssttspfv kpnpgsstg nsaghsgnni lgsevalfag iasgciifiv
241 iitlvlll kyrrrhkhs pqhtttls tlatpkrgsn nngsepsdii iplrtadsvf
301 cphyekvsd yghpvyivqe mppqspaniy ykv
```